

PHYSICS 98/198

HIDDEN INTERSECTIONS: ADDRESSING SYSTEMIC BIAS IN STEM

Fall 2021

Facilitator(s):	Ana Lyons, Mine Gokcen
Email(s):	ana.lyons@berkeley.edu , minegokcen@berkeley.edu
Instructor of Record:	Marjorie Shapiro
Email:	mdshapiro@berkeley.edu
Time:	W 15:30 – 17:00
Zoom Meeting ID:	912 4961 0703
Units:	1

Office Hours: To be determined at beginning of the semester.

Textbooks: There are no required textbooks for this class, as weekly readings will be drawn from a variety of sources. All readings will be posted online, there will be no requirements to purchase anything. However, there are a few books we will be reading excerpts from, which, if of interest to you, we highly recommend reading fully:

- Margot Lee Shetterly, *Hidden Figures: The American Dream and the Untold Story of the Black Women Who Helped Win the Space Race*, William Morrow and Company, 2016.
- Dava Sobel, *The Glass Universe: How the Ladies of the Harvard Observatory Took the Measure of the Stars*, Penguin Books, 2016.
- Phillip Ball, *Serving the Reich: The Struggle for the Soul of Physics under Hitler*, University of Chicago Press, 2014.
- Robin Wall Kimmerer, *Braiding Sweetgrass*, Milkweed Editions, 2013.

Course Description: Roughly the first half of the course will examine STEM stories that often get overlooked; an introduction to the contributions of women and people of color across the physical sciences, as well as the traditions of science and ways of knowing in non-western cultures. In the second half, we will move into the present day and examine how culture and systemic biases intersect with science.

Course Objectives: Gain appreciation for how women, people of color, other marginalized groups have contributed to physical sciences/STEM, learn how to analyze historical narratives critically, gain a better understanding of the challenges for underrepresented students in STEM + what we can do about it. Examine how culture, ethnicity, race, and gender intersect with the practice of science.

Prerequisites: No prior knowledge is assumed. All that is required is an enthusiasm to learn and discuss the course material!

Grading Policy: Pass (P) grades require a level of performance at least equal to a letter grade of C- and will earn units, but no grade points. No pass (NP) grades represent a level of performance at a D+ or lower. No units or grade points will be earned.

Grading Breakdown:

- **70% Participation:** The course will consist of once-a-week in class discussions, which will be preceded by a short lecture reviewing the readings and giving a short overview of the discussion topics. As the class is highly-discussion based, completing the assigned readings and being an active participant in class is crucial to success, and will make up the majority of the grade.

To gain full participation marks, you must:

- Attend at least 10/13 classes
- Take part in in-class and/or bCourses discussions

Given the extreme nature of our current circumstances, if students are in a different time zone or find themselves in other limiting circumstances at any time during the semester, please notify the instructors so they can help tailor the class to your situation.

- **15% Midterm Project:** Contribute to, or create a Wikipedia article on an overlooked area or figure in science.
- **15% Final Project:** Lead a mini-discussion on a topic of your choice, either expanding on something we discussed during the course, or covering something new. In addition, write a short reflection on your experience in the course.

Tentative Course Outline: See end of syllabus.

Important Dates:

Project #1	October 5
Project #2	December 1

Academic Integrity: Quoting from the UC Berkeley honor code: “As a member of the UC Berkeley community, I act with honesty, integrity, and respect for others.”

- Any test, paper or report submitted by you and that bears your name is presumed to be your own original work that has not previously been submitted for credit in another course unless you obtain prior written approval to do so from your instructor.
- In all of your assignments, including your homework or drafts of papers, you may use words or ideas written by other individuals in publications, web sites, or other sources, but only with proper attribution.
- If you are not clear about the expectations for completing an assignment or taking a test or examination, be sure to seek clarification from your instructor or GSI beforehand.

You should keep in mind that as a member of the campus community, you are expected to demonstrate integrity in all of your academic endeavors and will be evaluated on your own merits. The consequences of cheating and academic dishonesty—including a formal discipline file, possible loss of future internship, scholarship, or employment opportunities, and denial of admission to graduate school—are simply not worth it.

Accommodations for Students with Disabilities: Please contact an instructor as soon as possible if you require specific accommodations and we will work out the necessary arrangements.

Week	Topics Covered	Readings Due
AUG 25-29	Syllabus/Logistics, Intro to Topics	None
AUG 30- SEP 3	Introduction to history of "non-Western" science- How does culture affect how science is practiced?	Bcourses article
MON, SEP 6	Holiday	
SEP 7-10	Indigenous land management techniques, ecology	Braiding Sweetgrass
SEP 13-17	Polynesian Wayfinding/ Early history of astronomy	TBD
SEP 20-24	Overlooked contributions + "Great Men": who gets the credit for a discovery?	Hidden figures article + movie clip, Midterm project assigned
SEP 27- OCT 1	SPEAKER TBD	Keep working on midterm project
OCT 4-8	Midterm Project Presentations	Midterm project Due (No readings)
OCT 11-15	Intro to Part II: Ethics	Bcourses readings
OCT 18-22	Nazis, Eugenics, "Aryan" vs. "Jewish" science	Serving the Reich
OCT 25-29	Algorithms of oppression, militarization	Final Project Assigned
NOV 1-5	Science, then people? Mauna Kea + Thirty Meter Telescope	TMT protest articles
NOV 8-12	Authorship and collaboration	Keep working on Final Project
NOV 15-19	THANKSGIVING BREAK	Keep working on Final Project
NOV 24-26	In Class: Work on final project	Keep working on Final Project
NOV 29-DEC 3	Final Project Presentations	None
DEC 6-10	RRR Week	None