

Human Biology Newsletter

The Program in Human Biology | Stanford University

Fall 2008

More on the Core

Spring Quarter: Humans Inside and Out



This is the fourth in a series of articles about Stanford's Human Biology "Core," a 30-unit foundational class taken by all Human Biology sophomores. This course provides students with a comprehensive understanding of the human organism from biological, behavioral, and social perspectives.

During the spring quarter, the HumBio Core gets personal. While the first two Core quarters cover the past—from the history of evolution through childhood development, the Spring Core brings it all together, focusing on present-day humans. Students look inside their own brains to examine what makes them uniquely human. They also explore humans in the context of society and the environment. And all of this occurs as HumBio students reach the midpoint of their undergraduate careers, providing them with a foundation for future studies.

continued on page 2

[Image is from the [Bassett Collection](#), courtesy of eHuman]

DIRECTOR'S MESSAGE



One of the great aspects of directing Stanford's Program in Human Biology is the almost daily thrill of hearing about some new research project or discovery. I'm in constant awe of the ingenuity and enthusiasm of our faculty and students.

Carol Boggs

For those of you who miss this intellectual stimulation, I invite you visit [Stanford's iTunes U](#) online, as a way of continuing your education and reconnecting with your favorite HumBio professors. From this site, you can download some of the most inspirational and mind-expanding lectures for free. And you can listen to them while you're while driving, doing chores, or exercising.

Our latest course offering is "Darwin's Legacy," a ten-lecture series coordinated by Professors Bill Durham and Bob Siegel, myself and other Stanford faculty. It features leading Darwin scholars and researchers in evolutionary arenas across the landscape of the sciences and humanities. Another popular series is the "Initiative on Human Health," with over 60 health-related lectures on topics ranging from "The Ethics of Stem Cell Research" to "The Battle of the Diets." So rip, mix, and enjoy. §

What's Inside

SPRING CORE.....	2
UNDERGRAD RESEARCH.....	3
FACULTY NEWS.....	4-5
STUDENT NEWS.....	6
IN THE MEDIA/BOOKS.....	7-8
ALUMNI NEWS.....	9
EVENTS.....	10

CURRICULUM

Spring Core, cont'd

The A-side of the Core (HB-4A) consists of two parts neurobiology and one part physiology. **Russ Fernald**, the Benjamin Scott Crocker Professor of Biology, leads the neuroscience lectures, teaching about the development, structure, and function of the human nervous system. In these lectures, Fernald is able to incorporate his own groundbreaking research, which explores brain functions of simpler animals, specifically the African cichlid fish. His most recent finding—that these fish are able to observe territorial fights and use rudimentary logic to determine their own social ranking—was featured on a National Geographic television program, “[Testosterone Factor](#)” (See page 6). He also found that victorious male fish rewire their brains to change their physical appearance (with brighter colors) in response to changes in social status.

Fernald uses this research to impress upon students the plasticity of animal brains: “We’re all born with a mere draft of a brain that is custom-built to meet an individual’s needs over a lifetime. Though the general blueprint is established during childhood, the brain can still change a lot. For example, if a person loses a limb, the brain may reclaim the corresponding region of the brain for other purposes.”

“This is such an exciting time in neuroscience,” said Fernald. “On any given day, you can open up the *New York Times* or *Science* magazine and learn something new about the brain, so there is no shortage of new research to discuss in class.”

The physiology side of the Core is taught by **Craig Heller**, the Lorry I. Lokey/Business Wire Professor of Biological Sciences at Stanford. Heller is also a coauthor of the course textbook “[Life: The Science of Biology](#),” which includes online resources developed by Heller



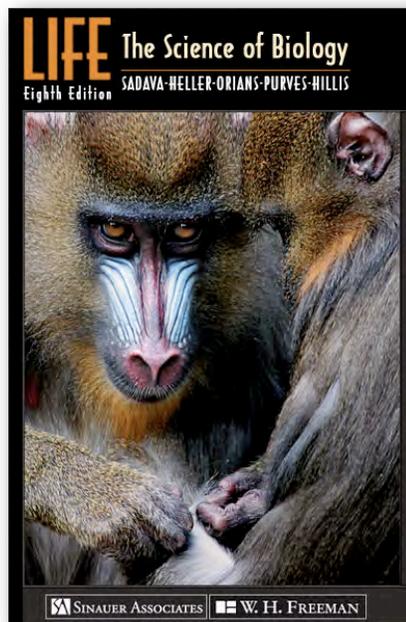
Core students ambushed CAs with cream pies after final presentations [Jenny Staves, Andrew Rogers, Michelle Wilson, Joe Sanford, Stacey Kallem]

through a Howard Hughes Medical Institute (HHMI) grant. (Watch his interview in the new National Geographic “Inside” feature, “[America’s Secret Weapons](#).”)

“At Stanford, students crave hands-on work, but we often don’t have the facilities or resources to offer laboratory work with all of our courses,” said Heller. “So, for physiology, I led a project to develop interactive computer units that simulate these processes. We also try to incorporate current controversies and research into the Core.”

Overall, Stanford’s approach to human biology is unique in its integration with public policy. HB-4B, or “the B-side” of the Core, presents known connections between life sciences and public policy, examining economic, social, and institutional forces that contribute to environmental and health problems that pose threats to humans. In addition, the course teaches the students analytical tools for evaluating public policies on protecting biodiversity, improving environmental quality and enhancing human health.

“Many human problems have their roots in biology, but to solve these problems and to seize new opportunities, students have to understand human society as well,” adds Heller. §



Heller is coauthor of the course text.

UNDERGRADUATE RESEARCH

Bone Marrow Donor Study

Shelly Navato (HB '10), a Stanford premed student with an interest in infectious diseases, landed a dream job last summer, analyzing how to best match bone marrow donors and recipients to minimize the risks of dangerous post-operative flares of the common herpes virus, cytomegalovirus (CMV). Navato was able to find this project through HB-REX (HumBio Research Exploration), a program funded by the Vice Provost for Undergraduate Education that enables HumBio majors to work full-time on research projects during the summer following their sophomore year.

Between 50 and 85 percent of people in the United States have had a CMV infection by the time they are 40 years old, according to the Centers for Disease Control and



Shelly Navato (HB '10)

intensity”) blood stem cell transplant from a person with or without CMV?

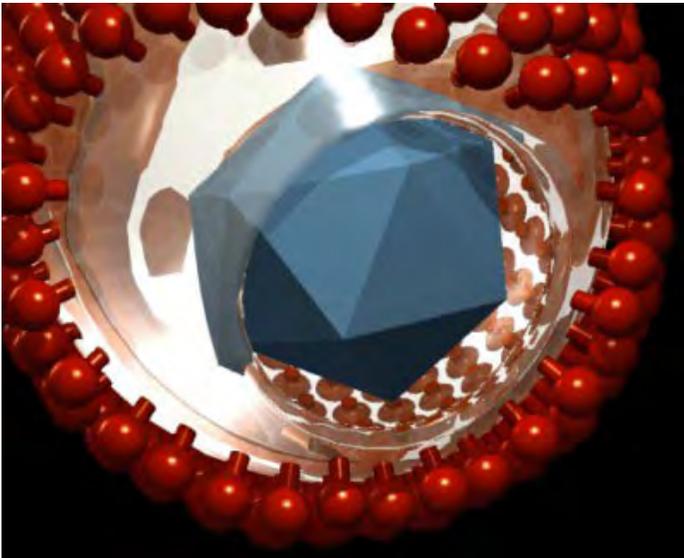
For Navato, the outcome of the study was surprising, and she was thrilled that the research abstract that she worked on with mentor **Joanna Schaenman**, Medical Fellow and Clinical Instructor, has just been accepted at the annual American Society of Hematology (ASH) meeting. (She can’t disclose the results until after publication.)

“During this project, I came to appreciate HumBio’s interdisciplinary approach to teaching,” said Navato. “Before I started the core work, I had to meet with a statistician, a database designer, and experts in blood and marrow transplants and infectious diseases. One of the most important steps was designing the database to collect patient data. We didn’t want to get midway through, only to discover that we’d missed something important.”

While Navato was originally drawn to clinical medicine because of her interest in personal physician-patient experiences, this project opened her eyes to the possibility of combining patient care with clinical research.

Navato adds, “I couldn’t see myself working in a lab all day, every day. But this applied research really appealed to me; I could see our work helping patients here, and in other clinics, on a daily basis. These cancer patients were more than abstract statistics to me.”

Another thing that Navato liked about her HB-REX experience was that it allowed her to work alongside a female physician in academia and ask her the questions that often can’t be answered in the classroom, such as what it’s like to juggle the responsibilities of a physician, researcher, mentor, and mother. §



*A virtual 3D model of human cytomegalovirus
© Dr. Marko Reschke <http://www.biografix.de/>*

Prevention (CDC). And while this infection results in mild mononucleosis-like symptoms in healthy people, it can be life threatening to immunocompromised bone marrow recipients, infecting the lungs, nervous system, gastrointestinal tract, and the eyes.

Working with her mentor, **Laura Johnston, M.D.**, Associate Professor of Medicine and a bone marrow transplant specialist at Stanford, Navato’s project objective was to answer this question—Is it better for a CMV-positive patient to receive a non-myeloablative (i.e., “reduced-

FACULTY NEWS

Shirley Feldman's HumBio Legacy Dinkelspiel Award Recipient



As an expert on adolescence—the transition from childhood to adulthood—**Shirley Feldman, Ph.D.**, has also helped transition the Program in Human Biology from its infancy to the largest and most popular undergraduate program at Stanford University. This year she retired, leaving behind an impressive 37-year legacy in Human Biology, and taking with her the 2008 Lloyd W. Dinkelspiel Award for Distinctive Contributions to Undergraduate Education.

Feldman was one of the early members of the Program in Human Biology, and she has taught continuously since its inception. For the last twelve years served as the program's associate director. During her tenure, she streamlined the upper division course offerings within Human Biology, expanding the curriculum's depth, especially in the social and behavioral sciences. She also made significant improvements to the undergraduate Honors Program, establishing a more rigorous student acceptance process, teaching research methodology, and creating a more sensible timeline. The result has been a better student experience and higher quality research.

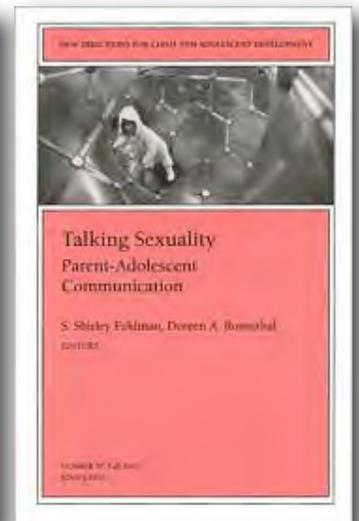
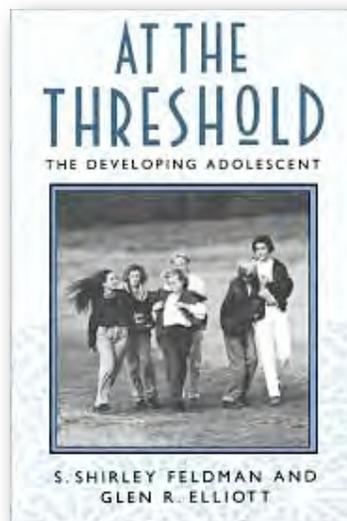
In her capacity as a senior research scientist in Stanford's Division of Child Psychiatry, her recent work

focused on adolescent development. She also co-edited the influential text, "[At the Threshold: The Developing Adolescence](#)." She has conducted longitudinal studies that span two important transitions—childhood to early adolescence and mid adolescence to adulthood—illuminating family influences on both normal and pathological development (including school success, peer relations, depression, delinquency, and sexuality).

With humor and a twinkle in her eye, Shirley was able to teach subjects that would make many professors blush, from sexual infidelity to promiscuity. Her research often struck a personal chord with students. For example, in one study she found that 60 percent of college-aged students from Northern California have experienced sexual betrayal.

Feldman earned the respect of faculty and students alike, with her vigorous 'can do' attitude and her deep concern for improving undergraduate education at Stanford. She inspired countless students and faculty who considered themselves extraordinarily fortunate to have learned from her.

At Shirley's farewell party, **Lia Cacciari**, HumBio's Student Services Officer, eloquently summed up Shirley's influence: "Thomas Carlyle's definition of genius is 'the transcendent capacity for taking pains, first of all.' Each of us individually and the program as whole have benefited for many years from that special genius of Shirley—to take pains, to care par excellence. It will be quite an adjustment to do without her. Her legacy is truly a cornerstone of HumBio's rich past and present success, and it will always be cherished in HumBio's future." §



FACULTY NEWS

Fuller Elected to the Academy

Margaret “Minx” Fuller, the Reed-Hodgson Professor in Human Biology and a professor of developmental biology and of genetics, was recently elected to the National Academy of Sciences. This prestigious society of scientists and engineers awards membership to scientists who further science and its applications for the general good.



Fuller’s work involves understanding the mechanisms that regulate adult stem cells. She uses the fruit fly male germ line as a model for determine the factors that either hold stem cells in an undifferentiated state or push cells to differentiate into adult forms. Fuller served as chair of Stanford's Department of Developmental Biology from 2003 to 2007. She received the American Cancer Society Junior Faculty Research Award (1983-1986), received the Searle Scholar Award from the Chicago Community Trust (1985-1988) and held the 1994 ACS Scholar in Cancer Research Award. Fuller became a member of the American Academy of Arts and Sciences in 2006. §

Health Care Lecturer to Retire

Geoffrey Heller, a favorite HumBio lecturer on health care policy, has retired from Stanford. He expects to continue work on health care reform options as a policy scholar at UCSF's P.R. Lee Institute for Health Policy Studies, and do some writing, lecturing and research abroad. Before coming to teach at Stanford ten years ago, his extensive experience included policy consultation with universities, institutes and governments in the US and abroad, often with specific emphasis on academic medical centers. He is a director emeritus for Health Policy and Legislation of



the University of California; served as executive director of a non-profit regional health care organization; and was Vice President of California Blue Shield. He said recently that he expected future challenges to pale when compared to the thrill of working with those creative, idealistic Stanford students. §

The Indiana Jones of Virology Lorry Lokey Visiting Professor in HumBio

This year Stanford's Human Biology students will be able to learn about viral epidemiology from **Nathan Wolfe**, a globetrotting virologist who was recently named the Lorry I. Lokey Visiting Professor in Human Biology.

Wolfe is the founder and director of the [Global Viral Forecasting Initiative](#) (GVFI), a non-profit group that is developing an early warning system that aims to prevent pandemics. With disease surveillance outposts all across Southeast Asia and Africa, Wolfe and his team are cataloging the DNA of new pathogens, in hopes of giving scientists the genetic data and tools for stopping the spread of virulent diseases before they become a global problem.



Wolfe graduated from Stanford’s Program in Human Biology in 1993, and he first became intrigued with genetics and Darwinian evolution during a year abroad at Oxford. He’ll be teaching “Hum-Bio 152: Viral Lifestyles” to undergraduates for three consecutive fall quarters beginning in 2008.

Wolfe received his doctorate in Immunology and Infectious Diseases from Harvard in 1998, and was the recipient of a Fulbright fellowship in 1997. Dr. Wolfe was awarded the National Institutes of Health (NIH) International Research Scientist Development Award in 1999 and the prestigious NIH Director's Pioneer Award in 2005, in part because of his discovery of the first evidence of natural transmission of retroviruses from nonhuman primates to humans. §

STUDENT NEWS

Grads Honored with 2008 Firestone

Four HumBio students were recognized with the Firestone Medal for Excellence in Undergraduate Research. The Firestone Medal is awarded to graduating students for honors projects in engineering and the social, physical and natural sciences. Below is a list of the awardees, their majors, honors projects and faculty sponsors:

Deshka Foster & Stacie Vilendrer: “[Principal Factors Influencing Treatment-Seeking Behavior for Childhood Malaria in Tanga, Tanzania](#)”; Joel Samoff, Center for African Studies, and Shirley Feldman, Human Biology.

Rebecca Grossman-Kahn: “Integral and Invisible: The Role and Role Perceptions of Community Health Workers in Northeast Brazil”; Donald Barr, Sociology, and Catherine Heaney, Psychology.

William Love Anderegg: “The Butterfly Effect: The Response of Riparian Bird Diversity to Climate Change and Human Development”; Terry Root, Woods Institute for the Environment, and Carol Boggs, Human Biology.



Bob Siegel hams it up in a mystery skit

Declaration Day Video

Stanford’s drama department breathed a sigh of relief as the HumBio Class of 2010 officially celebrated major declaration day with the production, “The HumBio Murder Mystery.” In this campy skit, a fair-haired HumBio student dies of an apparent broken heart after her boyfriend switches majors from HumBio to Poetry. Associate Professor (Teaching) of Microbiology and Immunology, **Bob Siegel**, rescues the boyfriend from manslaughter charges by deducing that the girlfriend is not actually deceased; she’s suffering from a viral-induced coma. You can [view this skit](#) on the HumBio website. §



Bill Durham and student advisor Eleanor Foote ran the Trivia contest with Fiona Gispén (not shown)

HumBio Reunion Online

During the 2008 Homecoming Weekend, HumBio alumni, faculty, and students gathered at the “Geo Corner” of the quad for food and libations, then tested their wits in a rousing game of HumBio trivia. Led by Bing Professor in Human Biology, **Bill Durham**, a good-humored emcee, the rambunctious crowd vied for a chance to win worthless, yet deeply meaningful prizes. If you missed out on the festivities, you can watch [video highlights](#) on the HumBio website. §

Cacciari Recieves Dean’s Award

Lia Cacciari, HumBio Student Services Officer, won the 2007-08 Humanities & Sciences Dean’s Award of Merit for tirelessly, good-humoredly, and deftly managing academic and course matters for hundreds of students and enhancing the productivity of dozens of faculty. She enriches the program and Stanford with her dedication, compassion, persistence, creativity, enthusiasm, and camaraderie!

Haas Center’s Honor Roll

The Haas Center for Public Service congratulated the following HumBio students for combining academic excellence with commitment-to-service-related activities through the Haas Center during their years at Stanford.

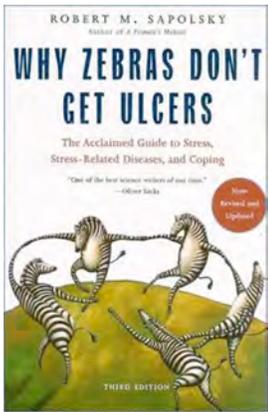
- Sara Heaps:** Goldman Sachs Global Leader
- Lauren Finzer:** Morris Udall & Truman Scholarships
- Elizabeth Pratt:** C.J. Huang Teaching Fellow
- Nila Bala:** J.E. Wallace Sterling & Lederberg Awards
- Fatima Hassan:** James W. Lyons Award
- Elizabeth Kersten:** John Gardner Public Service Fellow
- Linh Tran:** Tom Ford Fellowship in Philanthropy

IN THE MEDIA

Sapolsky on Killer Stress

PBS Program Features Favorite Professor

Stanford neurobiologist **Robert Sapolsky** was recently featured in the television special, “[Stress: Portrait of a Killer](#).” This program, which was co-produced by Stanford and the National Geographic, is the first time National Geographic has joined forces with a major research university to create original science programming for television.



Based on years studying stress in humans and baboons and material in his book, “[Why Zebras Don't Get Ulcers](#),” this program shows that stress is not just a frame of mind, but something measurable and dangerous to our health.

Sapolsky also teaches the wildly popular class “Human Behavioral Biology.” This entertaining class includes hilarious observations about primates and humans. One student summed up his teaching style: “Funny, animated, and approachable, he just blows your mind by the connections he makes between different fields. You are literally on the edge of the seat.”

Sapolsky, who holds the John A. and Cynthia Fry Gunn Professorship, received the MacArthur Foundation’s “genius” fellowship at the age of 30, was honored at The Stanford Pioneers in Science event on November 12 at Stanford.

To view upcoming broadcasts and video clips of this PBS program, you can visit the [Killer Stress](#) website. §



Watch a trailer of Killer Stress online



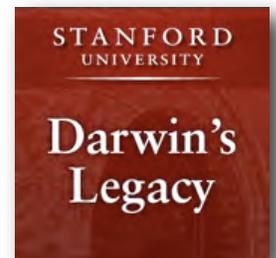
Fernald Featured on NatGeo TV

Professor Russ Fernald's work on male dominance among cichlid fish is featured in the National Geographic television special, “[The Testosterone Factor](#).” As part of the Explorer series, researchers in psychology, biology and anthropology reveal this powerful male hormone's fascinating influence on strength, status, success, and even commitment.

A Gift to You

In honor of Stanford's 20th year of Continuing Studies, HumBio is hosting a free audio lecture series, [Darwin's Legacy](#), on Stanford's iTunes U website, coordinated by Professors Bill Durham, Bob Siegel, Carol Boggs, and other Stanford faculty, each session is taught by leading Darwin scholars from around the country (including Durham, Siegel, and Melissa Brown from HumBio), covering different aspects of Charles Darwin's theories on anthropology, religion, medicine, psychology, philosophy, literature, and biology.

This is one of several activities that HumBio is organizing to celebrate the 200-year anniversary of Charles Darwin's birth and the 150th anniversary of his book, “On the Origin of the Species.” Bill Durham and David Abernethy, professor emeritus of political science are also hosting a [Stanford Travel](#) trip that traces Darwin's voyage on the HMS Beagle. §



IN THE MEDIA

HumBio Olympians

Last summer, five over-achieving HumBio students qualified for the Beijing Olympics, clearly taking their homework for “HumBio 135 Exercise Physiology” very seriously.

Ogonna Nnamani (HB '05), who was the U.S. women’s volleyball team’s youngest member in 2004, attended her second Olympics, and helped the team bring home the silver medal.

Leila Ben-Youssef, (HB '04) pole vaulted for Tunisia, finishing with a vault of 13-1 ½ feet.



Rachel Buehler (HB '07) shared a gold medal with the rest of the U.S. women’s soccer team, winning in overtime against their Brazilian opponents.

Jason Dunford (HB '09) placed fifth in the 100-meter butterfly finals for Kenya, 0.89 seconds behind gold medal winner Michael Phelps.

Matt Gentry (HB '05), wrestled in the 74 kg class for Canada; Gentry is currently coaching his fourth season for Stanford’s wrestling team.



Nnamani/Volleyball



Buehler/Soccer



Dunford/Butterfly

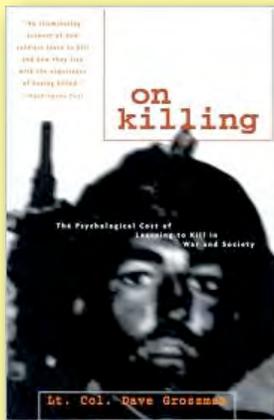


Gentry/Wrestling



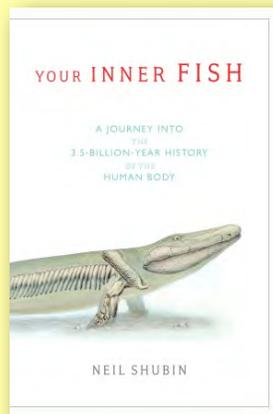
Ben-Youssef/Pole Vault

HumBio Reading List



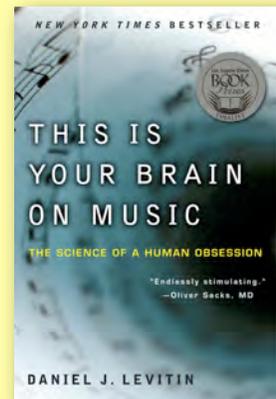
On Killing

The Psychological Cost of Learning to Kill in War and Society
by Dave Grossman



Your Inner Fish

A Journey into the 3.5-Billion-Year History of the Human Body
by Neil Shubin



This is Your Brain on Music

The Science of a Human Obsession
by Daniel J. Levitin

ALUMNI NEWS

HumBio Fulbright Fellows

Liberty Reforma (HB '08) is spending the year in the Philippines conducting community health development research through a Fulbright fellowship. During her years at Stanford, Reforma was heavily involved in the Filipino-American community on campus. She served as co-chair of the Filipino American Student Union (PASU) and coordinated the volunteers of the Asia-US Service Learning Program. She also worked on the steering committee for Arbor Free Clinic and, during her senior year, was an RA in Toyon Hall.

Melina Platas

(HB '07) will be conducting research on economic policy and development in Uganda during her 2008-09 Fulbright fellowship year.



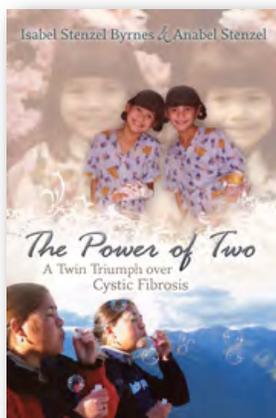
She's currently a reporter for "The Independent" magazine and the coordinator for the Fanaka Kwa Wote think tank in Kampala. Previously, she conducted research on community health care in Cape Town, South Africa and worked as a research assistant for Stanford's Center for International Security and Cooperation. During her undergraduate years, she was a teaching assistant for International Health and interned at the AIDS Support Organization (TASO) in Jinja, Uganda. She will pursue a Ph.D. in Political Science at Stanford in September 2009. §

Twins Pen Memoir

Born in 1972 to Japanese and German immigrant parents,

Anabel and Isabel Stenzel

(HB '94) are identical twins who recount their lifelong struggle to pursue normal lives with cystic fibrosis while grappling with the realization that that they will die young. In their memoir, "The Power of Two: A Twin Triumph over Cystic Fibrosis," the Stenzel twins, who both graduated from Human Biology in 1994, teach about the power of perseverance and about the ultimate power of hope. § www.stenzeltwins.com



Honors & Awards

Kris Newby (MSME '83, HumBio newsletter editor) was the senior producer and science writer for the documentary, "[Under Our Skin](#)," which was an audience-award finalist at Tribeca Film Festival and won two [Freddie Awards](#), called "the Oscars of health care media." This feature-length film explores the human, medical and political story behind Lyme disease, an underreported epidemic.



Christian Torres (HB '09) and Tress Goodwin

(HB'02) gave educational presentations at "[Leading Matters](#)," a worldwide series of inspirational events discussing how Stanford University is reinventing itself for the Stanford Challenge. Alumni who want to participate in these thought-provoking seminars and dinner gatherings can visit the Leading Matters website to register.

Shira Lipton (HB '01) spoke at last year's [Phi Beta Kappa Young Alumni Lecture](#),

"The Changing the Face of Dermatology: The Beautiful Legacies of a Stanford Education." This lecture series invites young professionals to share post-Stanford experiences and reflections with the next generation of Stanford students. Her research interests include conflicts of interest in biomedical research and direct-to-consumer advertising of prescriptions drugs.



Nate Selden (HB '86), Head of Pediatric Neurosurgery at [Oregon Health & Science University](#),

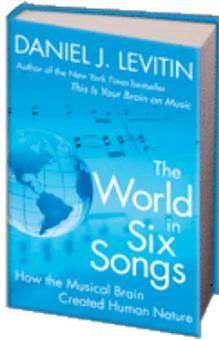
worked with a team of neurosurgeons and physicians at Doernbecher Children's Hospital to perform the first transplant of purified human fetal neural stem cells into the brain of a 6-year-old boy with neuronal ceroid lipofuscinosis (NCL), often referred to as Battens disease. Stanford researchers and Stem Cells, Inc. were also involved in this project, and results of study are currently in review. §



EVENTS

Levitin's Keynote on Notes

Daniel Levitin, the Lokey Visiting Professor in Human Biology (Winter '08-09), is a renowned scientist and a musician, explains how the brain processes music and how our perception of sounds can inspire emotion. Levitin is an acclaimed New York Times bestselling author of [This Is Your Brain on Music](#) and [The World in Six Songs](#), an audacious look at how the brain evolved to play and listen to music in six fundamental forms, and this, in turn, gave rise to human culture. This seminar is free and open to the public.



Endowed Chair for HumBio Director

Carol Boggs,

Professor of Biology (Teaching), was appointed as the first Bing Director in Human Biology, effective October 2008. This endowed chair was established with a generous gift from Helen and Peter Bing. §



Program in Human Biology Staff

- Director: **Carol Boggs**
- Assoc. Director: **Katherine Preston**
- Program Manager: **Linda Barghi**
- Admin. Assistant: **Robyn Duby**
- Program Support: **Barbara Hunt**
- Student Services Officer: **Lia Cacciari**
- Academic Technology: **Carlos Seligo**
- Web Developer: **Dustin Selman**
- Newsletter: **Kris Newby**

This newsletter is available online:
<http://humbio.stanford.edu/newsletter>

Thank You!

Stanford's Program in Human Biology extends its sincere appreciation to the generous contributions of our supporters.

When and Where:
 Weds., Jan. 28, 3:45 – 5:00 p.m.
 Jordan Hall, Bldg 420, Rm 41 §

We'd Like to Hear from You:

Our alumni, students and faculty are a community focused on making a difference in the world. You can strengthen this community by staying in touch and sharing your stories. Please send us news about your achievements, or ideas for this newsletter. And visit: <http://humbio.stanford.edu/newsletter> for updates on your former classmates.

Contact Information:

Program in Human Biology
 Attn: **Robyn Duby**
 Stanford University, Bldg 20
 Stanford, CA 94305-2160
 Phone: (650) 725-0336
rduby@stanford.edu



HumBio Trivia contestants at Reunion 2008