



FALL 2015

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**Freshman and Sophomore Seminars
University of California, Berkeley
231 Evans Hall
Berkeley, CA 94720-2922**

Freshman & Sophomore Seminars at Berkeley

UC Berkeley's Freshman and Sophomore Seminars provide an unparalleled opportunity for faculty members and small groups of lower-division students to explore a scholarly topic of mutual interest together, in the spirit of learning for its own sake. By taking a seminar a student becomes an active member of Berkeley's intellectual community. The seminars depend on the regular presence and active participation of every student. Sharing ideas in class is an important academic skill that can be acquired only through practice. The vigorous discussions that characterize the most successful seminars depend on the commitment of each and every member of the class. Students are encouraged to choose their seminars based on the pull of intellectual curiosity, a desire to explore enticing and even unfamiliar realms.

Please visit the Freshman & Sophomore Seminar website at <http://fss.berkeley.edu/> for the following:

- Updates to the seminar lists included in this document on easy-to-follow web pages
- Revisions to this document
- Pop-up menus to help students find seminars of interest based on seminar topics
- Information regarding the Food for Thought Seminar series, a wonderful way for faculty and students to get better acquainted in an informal setting before or after class
- Success, Seminars, and You – a web page full of good ideas and helpful links to support students in registering for a seminar and getting the most out of their seminars before, during and after taking a seminar

L&S Discovery Courses

The seven-course breadth requirement can be an unparalleled opportunity to explore fascinating worlds of knowledge. The Letters & Science Discovery Courses take the guesswork out of satisfying the breadth requirement. Taught by some of the most distinguished faculty on campus and deliberately designed to engage and ignite the minds of non-experts, these courses are unforgettable. For details on the Discovery Courses, see <http://lsdiscovery.berkeley.edu>.

This document was last updated on August 17, 2015.

FRESHMAN SEMINARS

The following courses, most of which are numbered 24, are limited to 15-18 students. Each is offered for one unit of credit. First-year students will be given priority for enrollment. Courses designated P/NP may be taken pass/no pass only; courses designated LG may be taken for a letter grade or on a pass/no pass basis. If a course is designated as requiring the consent of the instructor to enroll, or if you would like additional course information, contact the undergraduate assistant in the department offering the seminar.

African American Studies 24, Section 1
Language and Politics in Southern Africa (1 unit, P/NP)
Professor Sam Mchombo
Wednesday 2:00-3:00, 174 Barrows Hall, CCN: 00554

Food for Thought dining arrangements will be discussed in class.

This seminar will focus on political developments in Southern Africa and the use of language in fostering national identity and attaining cultural emancipation. We will look at case studies representative of the dynamics of the region. The topics covered will include a brief history of the peoples of Southern Africa; family structure, kinship systems and traditional political institutions; cultural practices and religious beliefs; the impact of contact with western culture and civilization on language issues and political organization; language and its role in fostering national identity in post-independence Africa; models of national language policy in multi-ethnic societies; language use and democratic practice and human rights; the impact of AIDS on economic development and linguistic ecology; prospects of mother-education; and the use of African languages in science and technology. Since the course is a seminar, students will be expected to participate actively in the class. There will be a course reader. There will be no examinations. Grades will be based on one 500-word paper and class participation. **This seminar is part of the Food for Thought Seminar Series.**

Sam Mchombo is an Associate Professor in the Department of African American Studies and was a member of the Department of Linguistics faculty from 1988 to 2009. He received his B.A. from the University of Malawi and Ph.D. from the University of London. He pioneered and taught courses in Linguistics and African Language Structure in what is now the Department of African Languages and Linguistics in the University of Malawi. From 1985-1988 he was a member of the Linguistics faculty at San Jose State University, teaching courses on general linguistics, syntax, and semantics. His research focuses on grammatical theory and African linguistic structure. Recently, he has also focused on aspects of African politics, delivering talks at the World Affairs Council on emergent democracies, as well as human rights in Africa. His publications include *Theoretical Aspects of Bantu Grammar* (1993), *The syntax of Chichewa* (Cambridge University Press, 2004), and "Democratization in Malawi: Its Roots and Prospects," published in a volume edited by Jean-Germain Gros called *Democratization in Late Twentieth-Century Africa*. Other works include papers on "National Identity, Democracy and the Politics of Language in Malawi and Tanzania," as well as "The Role of the Media in Fostering Democracy in Southern Africa," both published in *The Journal of African Policy Studies*, "Religion and Politics in Malawi" in *Issues in Political Discourse Analysis* (2005), and "Sports and Development in Malawi" in *Soccer and Society* Vol. 7 No. 2-3, 2006. He has delivered invited lectures and conference presentations in Hong Kong, Europe, Mexico, and in Africa. In Spring 2003, he was appointed Distinguished African Scholar by the Institute for African Development at Cornell University.

Faculty web site: <http://africam.berkeley.edu/faculty/mchombo.html>

African American Studies 24, Section 2
Researching "Mixed-Race" History and Images in the United States (1 unit, P/NP)
Professor Stephen Small
Tuesday 1:00-3:00, 650 Barrows Hall, CCN: 00556

Class will meet on Tuesdays from September 1 through October 13.

People of mixed racial origins are one of the fastest growing populations in California and across the United States. This course provides an overview of their contemporary circumstances and describes some sources and methods available for studying these populations (including those of mixed Asian, Black, Chicano, Native American or white ancestry). We will review some of the main themes in writings about people of mixed racial origins; and we will examine various sources for identifying mixed race populations, including census, biographies, literature and films. This course will equip students with basic research skills that can be utilized for other projects in African American Studies, Ethnic Studies, History, Sociology, Anthropology and Cultural Studies.

This seminar is designed for freshman students interested in thinking about people of mixed race origins in the United States.

Stephen Small, Ph.D. (UC, Berkeley) is Associate Professor in the Department of African American Studies where he has taught since 1995. He teaches courses on contemporary race and ethnic relations, public history and collective memory, globalization, people of mixed race, and qualitative research methods (including historical archives, ethnography and interviewing). His current research includes public history and collective memory, the Black Diaspora in Europe, and people of mixed origins. He has carried out research in Europe (England, Netherlands and Spain), in the Caribbean (Jamaica and Curacao) and in Brazil. His Ph.d. research was on people of mixed race in the Caribbean and the United States during slavery. He is co-editor of *Global Mixed Race*, with Rebecca Chioko King O'Riain, Minelle Mahtani, Miri Song and Paul Spickard, New York University Press, 2014. He was born and raised in Liverpool, England, a city with a large population of mixed origins. His origins are English and Jamaican.

Anthropology 24, Section I

The Polynesians: Anthropological Perspectives (1 unit, P/NP)

Professor Patrick V. Kirch

Monday 9:00- 10:00, 225I College Ave., Room 101, CCN: 02489

The Polynesians make up a family of related cultures whose ancestors discovered and settled the islands within a vast triangular region of the Pacific Ocean, with apices at Hawai'i, New Zealand, and Easter Island. The origins and migrations of the early Polynesians puzzled explorers and scholars during the eighteenth and nineteenth centuries, and became the subject of serious anthropological study in the twentieth century. Bringing to bear the different perspectives of archaeology, comparative ethnography, biological anthropology, and linguistics, scholars have shed an increasingly clear light on the story of the remarkable Polynesian diaspora—and of the subsequent evolution of these island cultures. This seminar will explore these different approaches within anthropology and how they have unraveled the history of the Polynesian peoples.

Professor Patrick Kirch has studied the island cultures of the Pacific for more than four decades, carrying out original fieldwork from Papua New Guinea in the west to Mangareva in the east. His particular specialty in anthropology is prehistoric archaeology, but he has also done original research in Polynesian ethnography and linguistic anthropology. He is especially interested in the origins and dispersals of the Polynesians, their interactions with their island ecosystems, and the evolution of their societies from simple chiefdoms to archaic states.

Professor Kirch is a member of the U. S. National Academy of Sciences and the American Philosophical Society.

Faculty web site: <http://arf.berkeley.edu/projects/oal/index.html>

Astronomy 24, Section I
Prospects and Search for Intelligent Life in the Universe (1 unit, LG)
Professor Geoff Marcy
Tuesday 10:00-11:00, 131A Campbell Hall, CCN: 05995

This seminar will explore the possibility that other intelligent civilizations exist in our universe. We will discuss discovering habitable worlds in other star systems that might permit biology, leading to intelligent species. Can we estimate how many intelligent civilizations are in our Milky Way Galaxy? We will discuss how those civilizations might develop technology and communication, by which we humans may discover them. Should we listen for their communications? If so, how? Should we transmit messages to them? If so, what message should we send, and how can we represent all of humanity in the message? Can we send spacecraft to other star systems? What propulsion methods are available for traveling to other stars? Are we alone in the universe, and is that the best question? There will be a 50-minute participatory discussion and reading of about 10 pages each week. **Non-science (or undeclared majors) may enroll.**

Professor Marcy is one of the leaders in the discovery of planets around other stars. Professor Marcy's discoveries include detection of the first multiple-planet system, the first Saturn-mass planet and the first Neptune-mass planet, and he now focusses on discovering Earth-size planets, including those that may support life. Professor Marcy holds the "Alberts Chair in the Search for Extraterrestrial Intelligence" at UC Berkeley. Professor Marcy is an elected member of the National Academy of Sciences, and was awarded the Carl Sagan Prize for Science Popularization, the Shaw Prize, and the NASA Medal for Exceptional Scientific Achievement.

Chicano Studies 24, Section I
Chicano Civil Rights Movement (1 unit, P/NP)
Professor Carlos Muñoz Jr.
Wednesday 1:00-2:00, 45 Evans Hall, CCN: 13965

The seminar will consist of examining the multifaceted dimensions of the 1960s Chicano Civil Rights Movement via documentary films and text.

Dr. Carlos Muñoz, Jr. is a Professor Emeritus in the Department of Ethnic Studies. He is the award-winning author of *Youth, Identity, Power: The Chicano Movement*.

Faculty web site: <http://ethnicstudies.berkeley.edu/faculty/profile.php?person=21>

Civil and Environmental Engineering 24, Section I
Ethical Problems in the Investigation of the Collapse of the World Trade Center (1 unit, P/NP)
Professor Abolhassan Astaneh
Wednesday 10:00-11:00, 544 Davis Hall, CCN: 14653

The Seminar focuses on the tragic collapse of the World Trade Center and how ethical issues affected the post-disaster investigation. This seminar discusses skyscrapers first and how they are designed and constructed. Then, the causes of the collapse of the World Trade Center will be discussed. For the remainder of the semester, our discussions will be on the ethical issues related to the failure of the investigation of the causes of collapse by a team organized by the American Society of Civil Engineers and funded by FEMA.

Professor Astaneh is a member of the faculty in the Department of Civil and Environmental Engineering. His area of specialty is behavior and design of structures to withstand gravity, seismic and blast loads. He has conducted several major research and design projects on long span bridges and tall buildings. He teaches graduate and undergraduate courses in structural engineering. He has studied extensively the

existing as well as the new Bay Bridge, including the ethical aspects of its design and construction, for more than twenty-four years.

Faculty web site:

<http://www.ce.berkeley.edu/people/faculty/astaneh?destination=people%2Ffaculty%2Fastaneh>

Civil and Environmental Engineering 24, Section 2

The Design, Construction and Testing of Household Clean Water Filters for Developing Countries (1 unit, P/NP)

Professor John Dracup

**See days and times below. 6:00-8:00 (1st mtg), 212 O'Brien Hall (first meeting),
CCN: 14656**

Class will meet: Thursday, August 27, 6:00-8:00 pm; Saturday, September 16, 9:00 am - 2:00 pm; Saturday, October 10, 9:00 am - 2:00 pm; and Wednesday, October 14, 6:00-8:00 pm

UNESCO and WHO report that approximately 6,000 children under the age of five die each day in the developing world from the lack of clean water and sanitation. This is equivalent to twelve Boeing 747 jet passenger planes crashing each day of the year. However, there are simple, cheap technologies available to mitigate this problem, which are the biosand, membrane and ceramic water filters.

These water filters have recently become widely used in the developing world as a means of purifying drinking water for individual household use. They provide a cheap and effective system of removing turbidity and pathogens (i.e. viruses, bacteria and worms) from polluted water.

Biosand filters can be readily made from local sources of sand and gravel. The bio layer is located at the top of the sand column and takes up to a few weeks to grow, feeding off the influent initially poured through the sand and gravel column. The outer container can be made from plastic or concrete, materials that are commonly available in the developing world. The pipes and connections are usually made of 1-inch PVC pipes.

Membrane water filtration is a method to remove viruses, bacteria and other contaminants from water by passing raw water through a micro-porous membrane. Most membrane filters for drinking water start with thin semi-permeable materials made from a synthetic polymer— manufactured as flat sheet stock or as hollow fibers. Many small, individual membranes are then bundled and formed into one of hundreds of different types of membrane modules. Ceramic filters are another method for removing viruses, bacteria and other contaminants from water, which passes through a wall of ceramic material

The purpose of this class will be to build and test three different biosand filter containers, three different membrane filters and three different ceramic filters. The class of 18 freshman students will be divided into three teams, with six students per each type of filter category. Each team will test, assess and report on its own unique filters.

To obtain a passing grade, attendance at all of the four class meetings is mandatory. There will be no exceptions. Please check your schedule carefully before registering for this class. This seminar is part of the On the Same Page initiative.

Dr. John Dracup is a Professor of the Graduate School in the Department of Civil & Environmental Engineering. His expertise is in water resource engineering and hydrology. His recent awards include being inaugurated into the "Order of the Black Blouse" by the Water Rights Court of Valencia, Spain; the designation of a Diplomat of the American Academy of Water Resource Engineering of the American Society of Civil Engineers; a Honorary Professorship at the Universidad Catolica St. Antonio of Murcia, Spain; and the "Agua para Todos" award from the Region of Murcia, Spain; he was a Senior Fulbright Scholar to Australia and he is a Fellow of the AGU, ASCE, AAAS and the AVRA. He is active in providing clean water to developing countries as a volunteer for Rotary International.

Faculty web site: <http://www.ce.berkeley.edu/faculty/faculty.php?id=205>

Civil and Environmental Engineering 24, Section 3
Waves – Ideal, Real, and In Between (1 unit, LG)
Professor Evan Variano
Wednesday 12:00- 1:00, 544 David Hall, CCN: 14658

Predicting sinusoidal wave motion has been one of the great successes of calculus and is a centerpiece of basic physics. However, many of the wave types observed in nature do not fit into this rather narrow mathematical description. This course will take a broad view of waves, exploring a wide variety of different wave types. Examples will be drawn from fields including biology, ecology, and physics, with a particular emphasis on the water waves encountered in environmental engineering. For each wave type we explore, we will consider the simplified mathematical models that try to capture the essence of the wave. We will explore the limits of these models and discuss the practical implications of making engineering decisions based on idealized models. The class will follow Gavin Pretor-Pinney's armchair science book, "The Wave Watcher's Companion," with supplementary material presented in class to motivate and support group discussions. **This seminar is part of the Food for Thought Seminar Series.**

Dr. Variano studies fluid motion in the environment, with a special focus on the air-water interface. As an innovator of laboratory techniques, he has found ways to directly observe fluid behavior in new and revealing ways. He uses his measurements to describe the underlying physical processes that control the motion of pollutants, nutrients, and plankton in the world's oceans. The constant tension between observing the world in all its complexity and simplifying it for engineering purposes is what drives his research program; this tension is a central theme that we discuss in the seminar. Undergraduates contribute in significant ways to his research efforts, with several students joining the lab each year. He has also published a paper on best practices for integrating research experiences and classroom learning.

Classics 24, Section I
Mycenae, Rich in Gold: Myth, Murder, and Mayhem (1 unit, P/NP)
Professor Kim Shelton
Wednesday 3:00-4:00, 186 Barrows Hall, CCN: 15283

The epic poet Homer used the epithet 'Rich in Gold' in The Iliad and The Odyssey to describe Mycenae, the wealthiest, most powerful, and most infamous of all the palatial citadels in Bronze Age Greece. Mycenae was the home or haunt for many of the greatest heroes of mythology: Perseus, Herakles, and Agamemnon, not to mention some of the most illustrious characters: murderous and incestuous Atreus, husband-slaying Clytemnestra, and matricidal Orestes. It is the setting for tragedy, epic, and intrigue.

Despite the fantastic tales associated with it, Mycenae is a real place with a real history. The archaeological excavation of the site has spanned more than a century and produced amazing treasures and unbelievable modern legends, including characters like Heinrich Schliemann, almost as mythical as the ancient heroes he investigated. Mycenae was indeed 'Rich in Gold' as it was also rich in mythology, history, and modern adventure.

Mycenae will be the setting for our seminar, with the mythological heroes and villains as its main characters, and the excavated artifacts as its props. The course will be primarily class discussion based on readings.

Requirements: Regular attendance and participation in class once a week; several short written assignments on questions and/or topics of discussion.

Kim Shelton is a faculty member in the department of Classics and the Director of the Nemea Center for Classical Archaeology. She has two excavation projects in Greece, including the UC Berkeley Excavations

at the Sanctuary of Zeus at Nemea and at the prehistoric Bronze Age site of Mycenae. She began excavating at a very young age and has never looked back. Her experience includes thirty years of fieldwork in this country and abroad, as well as twelve years of full-time research living in Greece.

Faculty web site: <http://shelton.berkeley.edu>

Development Studies 24, Section 2
Empowering Education: A Global Perspective (1 unit, P/NP)
Professor Erin Murphy-Graham
Tuesday 2:00-3:00, 180 Barrows Hall, CCN: 71205

What kinds of educational experiences are "empowering" for students, teachers and communities? In this seminar we will consider the term "empowerment," which has become a leading buzzword in international development policy. What exactly is empowerment, and how might education trigger the empowerment process? To address these questions we will examine a variety of educational interventions from around the world.

Erin Murphy-Graham is broadly interested in the role education plays in fostering or inhibiting social change. Her research areas focus on how education can promote gender equity and women's empowerment, the expansion and reform of secondary education in Latin America, and the connection between research and policy. With funding from the William and Flora Hewlett Foundation, she is currently engaged in a longitudinal mixed methods study investigating the impact of secondary school in the lives of adolescents in 110 rural Honduran communities. She is the author of *Opening Minds, Improving Lives: Education and Women's Empowerment in Honduras* (Vanderbilt University Press, Spring 2012) and her articles have appeared in journals including *International Journal of Educational Development*, *International Review of Education*, *Gender and Education*, and the *American Journal of Evaluation*.

Education 24, Section 1
Hot Topics in Higher Education (1 unit, LG)
Ms. Ellen Switkes
Wednesday 3:00-5:00, Center for Studies in Higher Education Library 768 Evans Hall, CCN: 23502

This seminar will meet the first eight weeks of the semester, beginning August 26. The instructor will hold office hours after class.

This seminar will focus on current topics of interest in higher education such as admissions policy, why college costs are so high, athletics, student speech codes and academic freedom, the student social scene, internationalization of higher education and high-school-to-college transition. Student-selected topics will also be included.

Ellen Switkes is Assistant Vice President Emeritus in the University of California Office of the President, and currently she is program coordinator at the Center for Studies in Higher Education.

Electrical Engineering and Computer Science 24, Section 1
Gadgets Electrical Engineers Make (1 unit, P/NP)
Professor Jeffrey Bokor
Wednesday 12:00-1:00, 125 Cory Hall, CCN: 24735

This seminar is intended to offer a taste of how the hardware that is powering the information age really works. Electrical engineers must invest considerable effort to learn their science and math fundamentals. Eventually, though, the fun comes in building innovative and practical gadgets. We will side-step the science and math and get right into the hardware. We'll take a look at what's inside some of today's most exciting products and technology as well as look ahead at the future products that are just around the corner. Our focus will be on hardware and we will see how much fun engineers can have using their hands other than by typing on a keyboard.

Jeffrey Bokor received the B.S. degree in electrical engineering from the Massachusetts Institute of Technology in 1975, and the M.S. and Ph.D. degrees in electrical engineering from Stanford University in 1976 and 1980, respectively. After twelve years at the legendary Bell Labs, Dr. Bokor joined the faculty of the EECS department at UC Berkeley in 1993, with a joint appointment at the Lawrence Berkeley National Laboratory (LBNL). His current research activities include new devices for nanoelectronics, and ultrafast processes in magnetic materials.

Faculty web site: <http://www.eecs.berkeley.edu/~jbokor/>

Energy and Resources Group 24, Section I
Complex Systems, Information Theory, and "Big Data" (1 unit, LG)
Professor John Harte
Monday 2:00-3:00, 202 Wheeler Hall, CCN: 27552

A premise of this seminar is that science, evolving relentlessly toward greater unification, will look very different by the middle of this century than it does today. The seminar's goal is to explore, using history as a guide, possible directions that science may take in the decades ahead. In the first half of the seminar we will read about some of the major historical transitions in science, with reading assignments grouped by Lucretius/Aristotle/Spinoza; Kepler/Newton/Laplace; Boltzmann/Einstein/Schroedinger, and Darwin/Mayr/Hutchinson. We will emphasize the recurring themes of exploiting data, unification, and the role of information-theoretic and statistical modes of inference. Keeping our eye on the rising sea of available data, and the lessons gleaned from history, in the second half of the seminar we focus on the current quest to better understand highly complex systems. Readings will include works of Wheeler, Jaynes, and contemporary "complexity scientists." We ask: what if anything is new about complexity science, and what kind of "big theory" of complex systems might emerge over the coming decades that could best utilize, and keep us from drowning in, big data?

John Harte is Professor of Ecosystem Sciences in ERG and ESPM. His degrees are from Harvard and U. Wisconsin. He was formerly a physics professor at Yale and is currently an External Faculty Member of the Santa Fe Institute and a senior researcher at the Rocky Mountain Biological Laboratory. His research includes experimental field investigations of ecosystem-climate feedbacks and theoretical studies in macroecology. He is a Fellow of the American Physical Society and the AAAS, and in 1990 was awarded a Pew Scholars Prize in Conservation and the Environment. In 1993 he was awarded a Guggenheim Fellowship and in 1998 he was appointed a Phi Beta Kappa Distinguished Lecturer. He is the 2001 recipient of the Leo Szilard prize from the American Physical Society, a recipient of a George Polk award in journalism, and has served on six National Academy of Sciences Committees. He has authored over 200 scientific publications, including eight books.

Faculty web site: <http://socrates.berkeley.edu/~hartelab/>

English 24, Section I
Shakespeare's Sonnets (1 unit, P/NP)
Professor Alan Nelson
Monday 12:00-1:00, 205 Wheeler Hall, CCN: 28203

Shakespeare's sonnets were first published in 1609, with a second edition in 1640. Although little is known about how they were received by early readers, over the years they have been the cause of almost infinite puzzlement, speculation, and delight. Over the course of the semester we will read all 154 sonnets, at the rate of approximately ten per week. All students will be expected to participate actively in seminar discussions. Each student will present one informal and one formal oral seminar report.

Alan H. Nelson is Professor Emeritus in the Department of English. His specializations are paleography, bibliography, and the reconstruction of the literary life and times of medieval and Renaissance England from documentary sources.

Faculty web site: <http://english.berkeley.edu/profiles/96>

**Environmental Science, Policy, and Management 24, Section 1
Issues in Natural Resource Conservation (1 unit, P/NP)
Professor David Wood
Friday 9:00-10:00, 106 Mulford Hall, CCN: 29225**

There is one optional field trip to Muir Woods on a Saturday or Sunday from 8:00 am to 3:00 p.m. to be arranged.

Some of the issues to be dealt with include management and preservation of timberlands; reducing fire risk through logging; management in wilderness areas; endangered species; importation and exportation of logs; the lives of John Muir and Gifford Pinchot; trees and religion; can rain forests be saved?; killer bees; coral reefs—human threat; jobs versus spotted owls; vegetarianism; Muir Woods, past and present; garbage in the United States; biofuels; solar power; airport expansion in the San Francisco Bay Area; the competition for water; global warming and geoengineering; and many more topics to be selected by the students.

Professor Wood's research interests include host-selection behavior of forest insects, chemical ecology, the biology and ecology of bark beetles, forest pest management, the biodeterioration of wood by insects, and insect/pathogen/tree interactions. In 1995 he was awarded the Berkeley Citation for distinguished service to the University.

Among his numerous publications, he recently co-authored three research papers, one that is published in *Forest Ecology and Management*, one in *Forest Science* and one in *Environmental Entomology*.

Faculty web site: http://ourenvironment.berkeley.edu/people_profiles/david-wood/

**Environmental Science, Policy, and Management 24, Section 2
Foresters, Forests and Forestry (1 unit, P/NP)
Professor Kevin O'Hara
Monday 3:00-4:00, 104 GPB, CCN: 29228**

What is forestry and what does a forester do? These are the central questions to be explored in this seminar. Forests cover much of the terrestrial surface of our planet and provide the habitat for much of the world's diversity. It is important that forests be sustained to provide these values in the future. Foresters play a key role in sustaining forests by understanding how forest ecosystems function and how they can be managed to sustain the many ecosystem services they provide. We will take a historical look at the role of foresters and discuss how a forester isn't someone who gives tours in a national park or lives in a lookout tower. The modern forester understands how forests change over time and the potential effects of climate change and increasing human populations on forests and forestry. This seminar will include a mixture of readings, videos, discussions, and a field trip to determine what forestry is. **Target students are first-year students majoring in Forestry and Natural**

Resources, related majors, or students interested in forestry. This seminar is part of the Food for Thought Seminar Series.

Kevin O'Hara is Professor of Forestry in the Department of Environmental Science, Policy and Management. His area of specialization is silviculture which is the culture of forests. His works takes him all over the world researching issues related to sustainably managing forests. He is a licensed forester in California and a Certified Forester by the Society of American Foresters. He is director of the long-running Forestry Field Camp program and faculty advisor for the Forestry and Natural Resources major.

Faculty web site: http://http://ourenvironment.berkeley.edu/people_profiles/kevin-ohara/

**Environmental Science, Policy, and Management 24, Section 3
Democratization of Science (1 unit, P/NP)**

Professor Louise Fortmann

Friday 11:00-1:00, 132 Mulford Hall, CCN: 29231

The course will run for seven (7) weeks, beginning Friday, August 28, 2015.

We will explore the contributions to science made by people without academic degrees and the way these contributions are encouraged or dismissed.

Louise Fortmann is a rural sociologist who has worked in East and Southern Africa, New York and California. She is the editor of *Participatory Research in Conservation and Rural Livelihoods: Doing Science Together*, in which half the chapters are authored by peasant farmers, forest products harvesters, Native Americans and residents of a Swedish forest community. Her inability to milk a cow has been the source of much hilarity in African villages where she has worked.

Faculty web site: <http://cnr.berkeley.edu/fortmann/>

**Environmental Science, Policy, and Management 24, Section 4
Conservation and Environmental Problem Solving: California and Beyond (1 unit, P/NP)**

Professor Gordon Frankie

Wednesday 11:00-12:00, 106 Mulford Hall, CCN: 29234

We will look at current conservation and environmental problems facing California and other states. We will examine each problem and its historical and ecological roots and then discuss the kinds of solutions available for addressing the problems. Students will be asked to suggest the problems, and then they will offer to report on them through PowerPoint or other media of presentation. One or two DVDs will be used to show details of some classic solutions, for example the "Saving the Bay" story, focusing on the three women credited with starting the movement that changed the way we now protect coastlines in California, the United States, and around the world.

All case history information will be discussed critically and constructively. The instructor will offer historical context to many of the discussions. This contribution is based on requests received in past seminars from students. **All students from all disciplines are welcome.**

Professor of ESPM with research interests in native bee ecology and plant reproductive biology in urban, wild, and agricultural environments in CA and Costa Rica. Also interested in the relationships between native bees, plants, and people. This three-part relationship has led to several projects in science-based outreach to the general public.

Faculty web site: <http://helpabee.org>

Environmental Science, Policy, and Management 24, Section 5
Soil Pollution and Remediation (1 unit, P/NP)
Professor Céline Pallud
Wednesday 11:00-12:00, 107 Mulford Hall, CCN: 29236

This seminar will explore environmental quality from the aspect of soil science. Soil degradation is the decline in soil quality due to agricultural, industrial or urban activities. Soil degradation is a global problem that encompasses physical, chemical and biological deterioration. Soils play crucial roles in the quality of our environment, affecting, for example, food and water quality and quantity, and supporting many living organisms. This seminar will focus on soil pollution, and on remediation, which is the removal of pollutants and contaminants. An understanding of soil properties and processes is essential to understand how pollutants behave in soil, and how to design (bio)remediation strategies. The seminar will introduce students to basic soil properties and will include current topics, relevant problems and discussion of emerging approaches to soil remediation, with a focus on bioremediation and phytoremediation (using soil microorganisms or plants to clean up soils).

C. Pallud has been teaching soil science and doing research on soil and environmental quality at UC Berkeley for the last five years. Her research and background are strongly multidisciplinary, at the interface between soil physics, soil chemistry and soil microbial ecology. Her research is focused on understanding how those nutrients and contaminants cycle in the environment, with implications for maintenance of water and soil quality, evaluation of pollution risks, and design of (bio)remediation strategies.

Faculty web site: <http://celinepallud.com/>

Environmental Science, Policy, and Management 24, Section 6
Discussions on Evolutionary Biology (1 unit, P/NP)
Professor Philip Spieth
Wednesday 3:00-4:00, 332 Giannini Hall, CCN: 29237

Discussions on Evolutionary Biology is a seminar for freshmen that explores the intellectual excitement of evolutionary biology and examines its significance for understanding the world we live in. Weekly readings and roundtable discussions introduce basic facts and principles of evolutionary biology, including both historical perspectives and contemporary issues. Attention is given to popular misconceptions of biological evolution.

Philip T. Spieth is an Emeritus Professor in the Department of Environmental Science, Policy, and Management who worked with computer models of evolution and studied genetic variation in natural populations of fungi. He joined the faculty of the former Department of Genetics in 1971 and taught population genetics for thirty years at UC Berkeley in both introductory genetics courses and in courses for advanced undergraduates and graduate students and has been a co-author of a general genetics textbook. He created and has taught Discussions on Evolutionary Biology since the inception of the freshman seminar program in the early 1990's. For eleven years he served as director of operations for the National Center for Science Education, a nonprofit organization devoted to the teaching of evolutionary biology and climate change science in public schools.

Faculty web site: http://ourenvironment.berkeley.edu/people_profiles/philip-spieth/

Ethnic Studies 24, Section 1
Obama, the GOP, and Immigration Reform (1 unit, P/NP)
Professor Alex Saragoza
Wednesday 1:00-2:00, 180 Barrows Hall, CCN: 31071

Taking into account the 2016 presidential election, this seminar will examine the debate over immigration reform in light of the partisan differences between the Republican-controlled Congress and the White House led by President Barack Obama. The seminar will discuss the background to this partisan controversy, the tensions within the two major parties over the issue of immigration, and the ways in which the potential candidates from both parties contend with the question of immigration.

Alex M. Saragoza is a professor of history in the Department of Comparative Ethnic Studies; he is currently working on a monograph on the political economy of the San Joaquin Valley.

Faculty web site: <http://ethnicstudies.berkeley.edu/faculty/profile.php?person=15>

Gender and Women's Studies 24, Section I

Gender at the Margins of the Global Economy in Behind the Beautiful Forever (1 unit, P/NP)

Professor Charis Thompson

Friday 10:00-12:00, 602 Barrows Hall, CCN: 32920

The seminar will meet weekly beginning August 28 and ending October 9, 2015.

In this freshman seminar we will read Katherine Boo's Behind the Beautiful Forever; examine Unnati Tripathi's photographs, films, and writing; and read Mrinmayee Ranade's journalism related to the project. We will explore what these sources teach us about women's and men's lives amidst poverty at the margins of global cities. Themes will include gender, sexuality, and family at the extremes of global inequity; economic, food, reproductive, and environmental justice; voice and agency; and the complexities of our emotions, responsibilities, and possible action in response to learning about global entanglements in extreme poverty in "the Global South." **This seminar is part of the On the Same Page initiative.**

Charis Thompson is Chancellor's Professor and Chair, Department of Gender and Women's Studies. She is the author of Making Parents: The Ontological Choreography of Reproductive Technologies, and Good Science: The Ethical Choreography of Stem Cell Research. She works in the fields of Science and Technology Studies and Transnational Feminist Theory.

Faculty web site: <http://womensstudies.berkeley.edu/faculty/charis.html>

Geography 24, Section I

Development Reconsidered: Reading, Interpreting and Placing Katherine Boo's Behind the Beautiful Forever (1 unit, P/NP)

Professor Michael Watts

Wednesday 12:00-1:00, 55A McCone Hall, CCN: 36233

Katherine Boo's book, Behind the Beautiful Forever, has been chosen for the incoming freshman class. It is a non-fiction work set in the slums outside the Mumbai airport. It is a deeply researched and magnificently written account of the lifeworld of the urban poor in the slums of the Global South. In this seminar we shall read and discuss the book, and we'll read it against some other work on thinking about development—its prospects, its failures, its challenges—in a world marked by extraordinary inequalities. **This seminar is part of the On the Same Page initiative.**

At the centre of my research and teaching interests is a longstanding engagement with the political economy of development and in particular energy and agro-food sectors in Africa. My own training at University College, London and at the University of Michigan was firmly grounded in Anthropology, Development theory, Ecology and Sociology, initially with a focus on the understanding the vulnerability of peasant communities in semi-arid Africa and the dynamics of subsistence and famine crises. While at

Berkeley I have tried to deepen my understanding of the intersections between political economy, culture and forms of power. Over the last decade I have devoted most of my time to the oil and gas sector and to the impact of oil in the Gulf of Guinea, especially in the Niger delta region of Nigeria.

For ten years I served as the Director of a research institute, the Institute of International Studies (1994-2004), which promotes cross-area and cross-disciplinary research and training on transnational and global issues. I established with Nancy Peluso the Berkeley Working Group on Environmental Politics, the major centre for cross-disciplinary political ecological research on the Berkeley campus. In addition I have served as the director of the Africa Studies Center, of the Rotary Peace Fellows program, and co-direct our undergraduate Development Studies Program with Professor Gillian Hart.

Faculty web site: http://geography.berkeley.edu/people/person_detail.php?person=21

History 24, Section 1

Endangered Children and Youth in Contemporary Africa: Documentaries (1 unit, P/NP)

Professor Tabitha Kanogo

Tuesday 10:00-12:00, 3205 Dwinelle Hall, CCN: 39242

Class will meet the first seven weeks of the semester, starting August 25, 2015.

Scheduled to meet for the first half of the semester only, this once-a-week, two-hour seminar will analyze documentaries that explore and expose the endangerment of children and youth in contemporary Africa. Documentaries on child trafficking and enslavement, child brides, child laborers, street children and youth, victims of FGM, child soldiers, HIV/AIDS orphans, and urban youth gangs will be viewed in class. The goal of the seminar is to examine the complex local, regional, and at times global factors behind the extensive abuse and endangerment of children and youth in Africa. In order to historicize and contextualize the study, we shall, in addition to the documentaries, refer to a limited number of published articles.

This seminar is open to all freshmen. There are no prerequisites for the class.

I am a professor of African History at the Department of History. A social historian, my research interests include gender, women, missions, labor and social movements, children and youth, and biographies.

Faculty web site: <http://history.berkeley.edu/people/tabitha-kanogo>

History 24, Section 2

Human Rights in Documents (1 unit, P/NP)

Professor Daniel Sargent and Doctoral Candidate Lynsay Skiba

Wednesday 3:00-4:00, 238 Kroeber Hall, CCN: 39243

What are human rights? Where do they originate? To whom do they apply? Human Rights in Documents will explore the evolution and applications of human rights through an examination of primary sources. From Locke to the Universal Declaration and beyond, this course will invite students to engage with the texts that have created contemporary human rights sensibility. Readings will be short and will be drawn from a variety of legal, political, cultural, and intellectual sources.

Daniel Sargent is assistant professor of history at the University of California, Berkeley. He received his BA from Christ's College, Cambridge in 2001 and his PhD from Harvard University in 2008. He is the author of *A Superpower Transformed: The Remaking of American Foreign Relations in the 1970s* (Oxford University Press, 2015) and a co-editor of *The Shock of the Global: The 1970s in Perspective* (Harvard University Press, 2010).

Faculty web site: <http://history.berkeley.edu/people/daniel-sargent>

Lynsay Skiba will in 2015-16 be a PhD graduate of the University of California, Berkeley and a lecturer in the Department of History.

Industrial Engineering and Operations Research 24, Section 1
Overview of IEOR (1 unit, P/NP)
Professor Ken Goldberg
Wednesday 4:00-5:00, 3102 Etcheverry Hall, CCN: 41003

Field trip arrangements will be discussed in class.

Industrial Engineers look at the big picture of what makes societies perform best. We design optimal combinations of people, information, materials, and equipment that produce innovative and efficient organizations. This seminar provides a general introduction to the field and profession. Each week a faculty member or graduate student from the IEOR Department will discuss his or her work in communications, ecommerce, entertainment, finance, food, health, logistics, manufacturing, medicine, pharmaceuticals, semiconductors, sports, travel, or transportation.

Ken Goldberg is Professor of IEOR at UC Berkeley, with appointments in EECS and the School of Information. Goldberg was named IEEE Fellow in 2005 and serves (2006-2009) as Vice-President of Technical Activities for the IEEE Robotics and Automation Society. He is Founding Chair of the IEEE Transactions on Automation Science and Engineering (T-ASE) Advisory Board. For more information regarding Professor Goldberg, visit <http://goldberg.berkeley.edu>.

Faculty web site: <http://goldberg.berkeley.edu/>

Industrial Engineering and Operations Research 24, Section 2
A Short History of Innovation in American Business and Technology (1 unit, P/NP)
Professor C. Roger Glassey
Thursday 2:00-3:00, 3102 Etcheverry Hall, CCN: 41006

We will read and discuss "The Business of America" by John Steele Gordon. This is an unusual history because it consists of vignettes of individual people who were significant innovators. I expect each student to have a copy and be prepared to participate in discussions.

Professor Glassey's undergraduate degree was from Cornell in Mechanical Engineering, followed by a year at the University of Manchester, England, three years in the Navy, and six years as an engineer for Eastman Kodak. During this time, he completed a MS in Applied Mathematics at the University of Rochester. He then returned to Cornell for a PhD in Operations Research. Professor Glassey joined the Berkeley faculty in 1965. His research interests included planning and scheduling of semiconductor manufacturing, solid waste management, and modeling of energy-economic interactions. In 1980, he spent two years in the Energy Information Administration in Washington where he directed a group of individuals who built and ran several large-scale models to study that topic. Since retiring, he has taught robotics for undergraduates, using Lego Mindstorms kits.

Integrative Biology 24, Section 10
How Plants Changed the History of our Planet (1 unit, P/NP)
Professor Cynthia Looy
Tuesday 9:00-11:00, 1101 Valley LSB, CCN: 42129

Class will meet for 7 weeks on the following Tuesdays: Sept. 8 and 29; Oct. 13 and 27; and Nov. 10, 24; and December 1.

During this seminar we will discuss what profound impact plants have on the functioning of our planet's surface, atmosphere and ecosystems. We will start off with the transition to land and the emergence of terrestrial ecosystems. We will explore ancient fossilized plant communities and their ecological properties, and examine how major extinction intervals affected their evolution. In addition, we will tour the plant fossil collection of the UC Museum of Paleontology.

Cindy Looy is a plant ecologist who investigates the response of Paleozoic plants and plant communities to environmental change during periods of mass extinction and deglaciation, and the possible evolutionary consequences. Her primary research is focused on several aspects of the end-Permian mass extinction and its aftermath and the transition from a glacial-dominated world to an ice-free one during the Late Carboniferous to the Middle Permian.

Faculty web site: <http://ib.berkeley.edu/labs/looy/>

Integrative Biology 24, Section 1 I
Solving Today's Extinction Crisis (1 unit, P/NP)
Professor Anthony Barnosky
Wednesday 10:00-12:00, 5053 Valley LSB, CCN: 4422 I

Class will meet 7 times on the following Wednesdays: Sept. 2, 9, 23, and 30; Oct. 7 and 28; and Nov. 4.

We will learn how scientists know that the Sixth Mass Extinction is underway, what is causing it, and what we can all do to avert it. The discussions will be structured around the new book *Dodging Extinction: Power, Food, Money and the Future of Life on Earth* (by A. D. Barnosky, UC Press, 2014). The focus of the class is on solutions to the extinction crisis, which revolve around energy production, food production, and the global economy. **This class is designed for students who want to learn how to make a difference in the world, no matter what career they choose.**

Anthony D. Barnosky is on the faculty at the University of California, Berkeley, where he currently holds the posts of Professor of Integrative Biology, Curator of Fossil Mammals in the Museum of Paleontology, and Research Paleoecologist in the Museum of Vertebrate Zoology. Author of numerous scientific publications, op eds, blog posts, and books, he has spent three decades conducting research related to past planetary changes, and what they mean for forecasting the changes to come on Planet Earth in the next few decades. His research has taken him to South America, India, China, Africa, Europe, and wild lands of the western United States, in a quest to learn how past species reacted to major environmental changes and what that tells us about the changes to come in our future. Further information about Professor Barnosky's work is available from his website. He can be followed on Twitter @tonybarnosky.

Faculty web site: <http://ib.berkeley.edu/labs/barnosky/>

Integrative Biology 24, Section 2
Night (and Day) in the Museum: What Really Goes on in Berkeley's Museum of Vertebrate Zoology? (1 unit, P/NP)
Professor Eileen Lacey
Wednesday 4:00-6:00, 3101 Valley LSB, CCN: 42106

This seminar will meet for seven weeks, beginning August 26, 2015 and ending October 7, 2015.

Ever wonder what museum curators really do? Through a combination of tours, hands-on exercises, and student projects, we will explore the diverse activities encompassed by modern natural history museums. This is a rare chance to go behind the scenes at one of the top vertebrate natural history collections in North America . . . and learn how you could become involved in museums-based studies of vertebrate evolution and conservation. We are hoping to recruit freshmen interested in potential long-term involvement in the Museum of Vertebrate Zoology community as students, interns, and research assistants. This includes (but is not limited to) students interested in museum science, vertebrate biology, field research, ecology and evolution.

This seminar is part of the Connections@Cal initiative and students will prepare weekly blog posts about their experiences in the course. **This seminar is part of the Connections@Cal initiative.**

Eileen Lacey is a behavioral ecologist who studies the ecological and evolutionary bases for sociality in vertebrates, with an emphasis on mammals. Currently, Dr. Lacey's work focuses on the reasons for group living and cooperation in several species of South American rodents. Her analyses combine field studies of the behavior and ecology of these animals with molecular genetic analyses of patterns of parentage and kinship within social groups. At Berkeley, Dr. Lacey teaches courses in animal behavior, behavioral ecology, and mammalogy, and she is Curator of Mammals in the Museum of Vertebrate Zoology.

Faculty web site: <http://ib.berkeley.edu/labs/lacey/>

Integrative Biology 24, Section 4
How and Why Do Birds Sing (1 unit, P/NP)
Professor George Bentley
Wednesday 2:00-3:00, 4110 Valley Life Sciences Building, CCN: 42112

Do you ever wonder why some birds sing and others just call? Would you like to know how songbirds produce such melodious tunes? What about the dawn chorus? Sexual attraction? Aggression? It's just the day-to-day life of songbirds. Come and learn about the anatomy and physiology of birdsong, from the specialized organs to highly evolved brains. Find out how bird song can cause hormones to surge. This seminar will cover the hows and whys of vocal communication in birds with an emphasis on what classic and cutting-edge research has taught us.

George Bentley received his B.Sc. in biology (1993), and his Ph.D. in zoology (1996) at the University of Bristol in the United Kingdom. Following receipt of his doctorate, Dr. Bentley joined the Behavioral Neuroendocrinology Group at Johns Hopkins University, initially as a postdoctoral fellow and later as an associate research scientist. In January 2000, Dr. Bentley moved to Professor John Wingfield's laboratory at the University of Washington as a research associate in the Departments of Psychology and Biology. Dr. Bentley moved to Berkeley in June of 2005, where he is an Associate Professor in the Department of Integrative Biology and his lab focuses on how the brain detects environmental cues and turns them into hormonal signals. These signals in turn affect the behavior and physiology of the organism itself, or organisms to which the behavior is directed. For example, a male bird's song can cause a female to solicit copulation and change her hormonal status. Exactly how the brain performs this feat is largely unknown, but birds are an excellent model for this type of research as they have extravagant auditory and visual displays. The research in Dr. Bentley's lab is mostly performed on birds, but is not limited to this vertebrate class. Current projects in the lab involve sheep, horses, rats, mice, hamsters and humans; many of these projects are in collaboration with other labs around the world (Japan, New Zealand, Germany, United Kingdom). Undergraduates are especially encouraged to get involved in active research projects. Currently, there are nine undergraduates working in the Bentley lab on neuroendocrine mechanisms of regulation of reproduction and on the neural basis of song behavior.

Faculty web site: <http://ib.berkeley.edu/people/faculty/bentleyg>

Integrative Biology 24, Section 5
Ethnobiology, Nutrition, and Global Food Systems (1 unit, P/NP)
Dr. Thomas Carlson
Tuesday 10:00-11:00, 4110 Valley Life Sciences Building, CCN: 42115

In this seminar we will read Michael Pollan's Omnivore's Dilemma and other select literature on related topics. We will explore the ethnobiological systems around the world that generate thousands of different species of plants and animals eaten by humans. We will examine the historical, cultural, commercial, and biological factors that have resulted in the worldwide consumption of certain plant (e.g., corn) and animal (e.g., cow) species. We will also compare the nutritional qualities, health effects, and carbon footprint of industrial food, organic food, locally grown food, and food that is hunted or gathered. **This is a Creating Change Theme Seminar.**

Dr. Carlson is an ethnobotanist, botanist, and physician who has conducted food and medicinal plant research with numerous different ethnolinguistic groups in Africa, Asia, Oceania, and the Americas. He has published articles in a spectrum of different disciplines including pharmacology, chemistry, experimental biology, nutrition, botany, ethnobotany, and anthropology. Professor Carlson teaches courses in medical ethnobotany, botany, California plant life, evolutionary medicine, and human reproduction.

Faculty web site: <http://ib.berkeley.edu/people/faculty/carlsont>

Integrative Biology 24, Section 7
A History of California in Fifty Fossils (1 unit, P/NP)
Professor Seth Finnegan
Wednesday 10:00-11:00, 4110 Valley LSB, CCN: 42121

The remarkable natural history of California is documented by a rich and diverse fossil record. The UC Museum of Paleontology (UCMP) archives hundreds of thousands of these fossils, spanning the full range from tiny marine microfossils to dinosaurs, whales and mammoths. These fossils tell us about vastly different worlds that once existed in what is now California: tropical seaways that swarmed with trilobites half a billion years ago in what is now Death Valley, and Saber-tooth cats that lived in what is now downtown Los Angeles just 20,000 years ago. This seminar will use the UCMP collections as primary materials to introduce students to the fossil record and to explore the kinds of information that it provides about the evolution of life on Earth in general and in California in particular. **Would like students with a strong and demonstrated interest in the historical sciences (history of the Earth system and of life). Would like them to send me a one-paragraph statement about why they are interested in taking this seminar. This seminar is part of the Food for Thought Seminar Series.**

I am broadly interested in the processes that have shaped the structure and composition of marine ecosystems from the origin of animals to the present day. I am especially interested in how past episodes of environmental change have led to the extinction of some groups and the diversification of others. Research in my lab integrates data from a variety of sources including field observations, lab work, and literature databases to examine patterns and processes of evolutionary and ecological change through time.

Integrative Biology 24, Section 8
Randomness and Heritable Memories in Biology (1 unit, LG)
Professor Han Lim
Monday 10:00-11:00, 4110 Valley LSB, CCN: 42124

So you think you are the product of your genes and your environment? Well, that's only part of the picture. In this seminar series we will discuss how random biochemical events and the experiences of

previous generations can shape an organism's phenotype. Learn why some decisions that determine an organism's fate are left to chance and how this impacts our strategies for preventing and treating bacterial infections. Discover how single cells can inherit memories. Find out how your grandparents' environment may have played a role in shaping your development.

Han Lim is in the Department of Integrative Biology and teaches systems biology to biology and bioengineering majors. Dr. Lim trained in medicine and surgery in Australia and has a PhD in pediatrics from the University of Cambridge. His lab studies gene regulation in bacteria using a combination of experiments and mathematical modeling in order to obtain insight into the fundamental processes involved in gene regulation, to better understand infectious disease and to uncover design principles that can be applied to synthetic biology.

Faculty web site: <http://ib.berkeley.edu/people/faculty/limh>

Integrative Biology 24, Section 9
The Age of Dinosaurs: What Do We Know? (1 unit, LG)
Professor Kevin Padian
Wednesday 12:00-1:00, 1101 Valley LSB, CCN: 42127

Dinosaurs were big funny animals, and "Jurassic Park" was cool. But what's behind all this? In this seminar we use dinosaurs to explore how we know what we know about extinct life, and the methods and approaches that scientists use to study evolution in general. We also explore common myths, such as the idea that dinosaurs were slow and slow-witted, and that an asteroid drove them to extinction. Berkeley's Museum of Paleontology is the largest collection of fossils in any university in the world, and we use it on a weekly basis in this course. A notebook, some writing, and strong initiative in participation are required. **Students don't need any preparation for this course except an interest in the subject and the desire to understand how science is constructed. This course is designed to be taken for a letter grade. Students who elect to take this seminar should enroll under the letter grade option.**

Students interested in the class should enroll and send the instructor a paragraph explaining their interest in the class by August 15 (to kpadian@berkeley.edu). **Applications (limited to 8) will be accepted on a rolling basis before then and the course closed on August 16.**

Kevin Padian has been teaching at Berkeley for thirty years, mostly courses in evolution, paleontology, and the history of these fields. Research in his lab centers on how large-scale changes get started in evolution, particularly the major new adaptations in vertebrates such as flight, the emergence of dinosaurs, and the evolution of unusual structures and behaviors. He also spends a lot of time on the creation-evolution issue, educating the public about what science is and isn't.

Faculty web site: <http://ib.berkeley.edu/people/directory/detail/5468/>

Journalism 24, Section 1
Behind the Beautiful Foreverers in the U.S.A.
(1 unit, LG)
Professor Thomas Leonard
Monday 3:30-4:30, 209 North Gate Hall, CCN: 48002

Katherine Boo's frame of mind for the slums of Mumbai was anticipated by American reporters who told rich stories about Americans who were just scraping by. Examples include what immigrants wrote about in their own "undercities" in the nineteenth century; later reformers who published to document poverty; and pioneering photographers and film makers who showed an America far poorer than most citizens realized. Reporting today on this subject crosses the old borders of journalism to True Crime, non-

fiction that illuminates how Americans cope in communities that may be as chaotic as the slums of Mumbai.

American observers studied in this seminar may include Jacob Riis, Abraham Cahan, Upton Sinclair, Edmund Wilson, James Agee, Walker Evans, and Dorothea Lange. Moving into the twenty-first century, David Simon with *The Wire* and Jill Leovy, *Ghettoside*, are proof that reporters can overcome barriers that are similar to the ones that stood in Katherine Boo's way.

This seminar is part of the On the Same Page initiative.

Tom Leonard led both the Media Studies Program and the University Library during his long career as a faculty member in the Graduate School of Journalism. He has published three books and many articles on how American media took account of domestic political life and wars abroad, from the eighteenth century to the age of digital information. His current work explores "piracy," both as a way of life in early America and as a catch-phrase for the borrowing of information in our time.

Linguistics 24, Section I

Language Myths (I unit, P/NP)

Professor Larry Hyman

Monday 9:00-10:00, 221 Wheeler Hall, CCN: 52457

Everyone has preconceptions about language in general and languages in particular. But are these accurate? In this course we will discuss and evaluate a number of common language myths such as these: Are all languages equally complex? Are some more logical? More beautiful? Is there such a thing as a primitive language? Do some people speak more grammatically than others? Is the English language undergoing a process of decay? We will draw on facts from English, other languages that may be familiar to participants, and lesser known languages that bear on the above and other questions. **No linguistic or other prerequisites are required. All interested students are welcome, especially students who have a fascination with language and/or languages.**

Larry M. Hyman is a Professor of Linguistics at Berkeley where he chaired the Department of Linguistics from 1991 to 2002. He obtained his Ph.D. at UCLA in 1972 and subsequently taught at USC until coming to Berkeley in 1988. His research centers around the study of sound systems (phonology) and grammar, particularly within Bantu and other Niger-Congo languages in Africa. His publications include several books and numerous articles in the major journals in general and African linguistics. One of his long-standing interests is the study of tone languages, as found in Africa, Asia, Meso-America and elsewhere.

Faculty web site: http://linguistics.berkeley.edu/people/person_detail.php?person=19

Mathematics 24, Section I

Using Random Walks in the Physical and Social Sciences (I unit, P/NP)

Professor F. Alberto Grunbaum

Tuesday 1:00-2:00, 939 Evans Hall, CCN: 53779

Random walks (whatever they are) have been used as models to understand all sorts of phenomena. More recently this has been enriched with the introduction of so-called "quantum walks." I will explain what this is all about and illustrate some of the surprising results one can explain with these tools by looking at the so called Parrondo's paradox (you may want to Google this one).

Alberto Grunbaum is a Professor in the Mathematics Department at UC Berkeley. His fields of expertise include analysis, probability, integrable systems and medical imaging.

Faculty web site: <http://math.berkeley.edu/people/faculty/f-alberto-gruenbaum>

Mechanical Engineering 24, Section I
Art and Science on Wheels (1 unit, P/NP)
Professor Benson Tongue
Thursday 1:00-2:00, 61 Evans Hall, CCN: 55353

This seminar will examine two devices near and dear to my heart—the automobile and the bicycle. Both of these have undergone a long history of change and innovation; both inspire passion in their users; and both embody technical as well as artistic excellence. Some issues we will look at will be efficiency, alternative power sources, environmental impact, dynamics, aerodynamics and handling. Along the way we'll dispel some myths, and ideally people will leave with a deeper appreciation for what bicycles and cars truly represent. **Enrollment is limited to twelve students.**

Benson likes to profess in the Department of Mechanical Engineering. His interests lie in the fields of vibrations, dynamics and controls, not to mention Scottish dancing, bicycling, fast cars, bird watching, photography and playing around with Photoshop. His books, *Principles of Vibrations and Dynamics: Analysis and Design of Systems in Motion*, make great bedtime reading.

Faculty web site: <http://www.me.berkeley.edu/faculty/tongue/>

Media Studies 24, Section I
Exploring the News (1 unit, P/NP)
Professor Neil Henry
Wednesday 10:00-11:00, 267 Bancroft Library, CCN: 56736

This course will examine the forces shaping the news in American society, who produces it, by what means it is delivered, who consumes it, and what roles it plays in informing the public. Certain basics of news reporting and writing will also be covered. Keen attention to following the news—online, broadcast, and print journalism—will be required, as will consistent participation in classroom discussions. Several short writing exercises will be assigned.

Neil Henry worked for sixteen years as a staff writer for The Washington Post and Newsweek magazine prior to joining the faculty in 1993. A former national correspondent and Africa Bureau Chief for the Washington Post, Professor Henry has won awards from the John S. and James L. Knight Foundation, Associated Press, and Robert F. Kennedy Memorial for his reporting and writing. He is the author of a 2002 racial memoir, *Pearl's Secret*. His second book, *American Carnival*, which examines the news industry's adjustments to the digital age, was published in 2007. Between 2007 and 2011, Professor Henry served as dean of the Graduate School of Journalism, attracting three endowed chairs under the Hewlett Challenge and hastening the School's curricular transition to incorporate digital skills training. A graduate in Politics from Princeton University, Professor Henry earned his Master's degree from Columbia University's Graduate School of Journalism.

Faculty web site: <http://journalism.berkeley.edu/faculty/henry>

Molecular and Cell Biology 90A, Section I
Evolution: Creatures, Not Creation (1 unit, LG)
Professor Jeremy Thorner
Friday 12:00-1:00, 430 Barker Hall, CCN: 57668

The advent of molecular biology, recombinant DNA methodology, and the capacity to obtain and computationally analyze the complete nucleotide sequence of any genome (from a bacterium to a human) has confirmed the close relationships among all organisms at the genetic and biochemical level, and has confirmed the major tenets of the theory of evolution that were based on the fossil record and other more circumstantial and empirical evidence derived from field observations of existing populations. This course will discuss the unique physical and chemical properties of both water and carbon, and other

molecules and elements on which the life forms on our planet are based; the principles of the scientific method and its application to our observations of the natural world; how the term "theory" is applied in science; and the forces that influence organismal survival, adaptation and speciation. Readings may range from Charles Darwin to Steven Jay Gould to James D. Watson. **This course is designed to be taken for a letter grade. Students who elect to take this seminar should enroll under the letter grade option.**

Jeremy Thorner is a Professor in the Division of Biochemistry, Biophysics and Structural Biology in the Department of Molecular and Cell Biology. He has been a faculty member at UC Berkeley since July 1974. His current research addresses the mechanisms by which cells respond to and decode changes in their extracellular environment and induce the appropriate changes in metabolism, gene expression, growth, and proliferation rate, and cell shape that allow a cell to cope properly with the changed circumstances.

Faculty web site: http://mcb.berkeley.edu/index.php?option=com_mcbfaculty&name=thornerj

**Molecular and Cell Biology 90E, Section I
Matter, Mind, Consciousness (1 unit, P/NP)
Professor David E. Presti
Wednesday 2:00-3:00, The Berk on Arch (2311 Le Conte Ave.), CCN: 57680**

All we know comes to us via our mental experience: our thoughts, feelings, perceptions, and conscious awareness. However, it is a deep mystery how the physical processes of our brain and body give rise to the subjective experience of consciousness. Some argue that the investigation of this mind-body connection is the most profound question in all of science. We will address this question from the perspectives of biology, philosophy, physics, and psychology--cognitive science, broadly defined.

Students interested in all areas of the sciences, arts, and humanities are encouraged to enroll. This seminar is part of the Connections@Cal initiative.

David Presti has taught neuroscience at UC Berkeley for more than twenty years. For nearly ten years, he has also been teaching neuroscience to Tibetan monastics in India.

Faculty web site: <http://mcb.berkeley.edu/labs2/presti/>

**Natural Resources 24, Section I
Global Environment Theme House Freshman Seminar (1 unit, P/NP)
Professors J. Keith Gillless and Allen Goldstein
Monday 5:00-6:00, 4301 Foothill 4 - Classroom A, CCN: 61403**

After the formal sessions, the professor and students may continue their discussion informally over dinner in the Dining Commons. Food for Thought dining arrangements and field trip arrangements will be discussed in class.

The goal of this Freshman Seminar is to bring students and faculty together to explore issues such as global environmental change, policy and management of natural resources, sustainable rural and urban environments, and environmental leadership. The seminar will provide students and faculty a forum to exchange ideas, challenge one another's thinking, and share experiences in a small group setting. Students will have the opportunity to do research and teach their peers about regional to global environmental issues in preparation for Theme Program field trips and guest speakers. **Course enrollment is restricted to Global Environmental Theme House participants. Obtain CEC from the instructor. This seminar is part of the Food for Thought Seminar Series.**

J. Keith Gillless is a professor of forest economics and dean of the College of Natural Resources. His degrees are in forestry and agricultural economics from Michigan State University and the University of

Wisconsin. He has been a member of the Berkeley faculty since 1983. His research and teaching interests include wildland fire protection, environmental economics, international forestry development, biofuels and a lot of other things.

Faculty web site: http://ourenvironment.berkeley.edu/people_profiles/j-keith-gillless/

Allen Goldstein is Professor in the Division of Ecosystem Science in the Department of Environmental Science, Policy and Management. He received a B.S. in Chemistry and a B.A. in Politics from UC Santa Cruz, and a Ph.D. in Chemistry from Harvard University. His research addresses the interface between natural and anthropogenic influences on regional and global atmospheric composition and chemistry. He will lead the field trips.

Near Eastern Studies 24, Section 2
Gods and Demons in Ancient Egypt (1 unit, P/NP)
Professor Rita Lucarelli
Thursday 1:00-2:00, 252 Barrows Hall, CCN: 61541

The seminar aims to provide an overview of the ancient Egyptian conceptions of gods and supernatural beings interacting with humankind in daily life and after death. The ancient Egyptian religious and funerary beliefs will be presented and discussed through the analysis of material and written sources produced in Egypt from Prehistory throughout the Greco-Roman Period. **This seminar is part of the Connections@Cal initiative. This seminar is part of the Food for Thought Seminar Series.**

Rita Lucarelli studied at the University of Naples "L'Orientale," Italy, where she received her MA degree in Classical Languages and Egyptology. She holds her Ph.D. from Leiden University, the Netherlands (2005). Her Ph.D. thesis was published in 2006 as *The Book of the Dead of Gatseshen: Ancient Egyptian Funerary Religion in the 10th Century BC*.

From 2005 to 2010, Lucarelli held a part-time position as a Lecturer of Egyptology at the University of Verona, Italy. From 2009 to 2012, she worked as a Research Scholar on the Book of the Dead Project at the University of Bonn, Germany.

She was a Visiting Research Scholar at the Italian Academy of Advanced Studies of Columbia University (2009) and at the Institute for the Study of the Ancient World (ISAW) of NYU (2012).

Until June 2014 she worked as a Research Scholar and a Lecturer (Wissenschaftliche Mitarbeiterin) at the Department of Egyptology of Bonn University, and she held a part-time position as a Lecturer of Egyptology at the University of Bari in Italy.

Rita Lucarelli is currently writing a monograph on demonology in ancient Egypt and she is one of the coordinators of the Ancient Egyptian Demonology Project: <http://www.demonthings.com>.

Faculty web site: http://nes.berkeley.edu/Web_Lucarelli/Lucarelli.html

Nuclear Engineering 24, Section 1
How It's Made (1 unit, P/NP)
Professor Peter Hosemann
Monday 4:00-5:00, 51 Evans Hall, CCN: 64003

This class is an introduction to the conventional manufacturing techniques of components used in nuclear and other engineering applications. An introduction to metal fabrication will be given, including, but not limited to, a brief introduction to refining, casting, forming, machining and joining. After an overview of the

techniques available to engineers, the students will be expected to perform a literature review and discuss how specifically chosen components can be manufactured. In addition, the students will be encouraged to participate in the campus-offered machine-shop training where basic skills in machining are taught after a short introduction by the professor to the shop tools.

Originally from Vienna Austria, Peter Hosemann earned his MS in 2005 and his PhD in 2008 at the Montanuniversitaet Leoben in Austria in Materials Science. Professor Hosemann is interested in experimental materials science for nuclear applications. His main focus is on structural materials used for nuclear components (fission, fusion, spallation, etc.). His research focuses on developing a basic understanding of the materials' degradation processes in a nuclear environment and resulting consequences to engineering application.

Nutritional Sciences and Toxicology 24, Section I
Mentorship in Movies and at Cal (1 unit, P/NP)
Professor George Chang
Wednesday 10:00-12:00, 211 Dwinelle Hall, CCN: 64602

Mentorship from professors is a very important reason for attending a top-tier university like UC Berkeley. Cal is one of the world's greatest universities, but it can be hard for Cal students to find a faculty mentor. This is a problem.

In this seminar we will approach the mentorship problem by studying some of the great mentors in the movies. We will examine mentorship in its very earliest, least obvious stages; discuss how students can find further mentorship; and finally see how multiple and repeated small bits of mentorship can add up to a great mentorship experience.

In the course of the semester, we will screen films such as "The Drunken Master" and "Back to the Future." After each movie, a team of students will lead a discussion about the film. Some students may choose to focus on the movie plots or characters. Others might discuss film production, distribution, or even the actors and filmmakers themselves.

While our official theme is mentorship, we will inevitably discuss other aspects of the student experience. In past years our conversations have ranged from time management to exam preparation to "the roommate from hell."

After class, we will continue our discussions over lunch in the Unit Three Dining Commons. I will provide free meal passes for seminar members who do not have meal plans. In addition, we will use a "secret" Facebook site for sharing thoughts, ideas, and videos.

This seminar is part of the Connections@Cal initiative. This seminar is part of the Food for Thought Seminar Series.

Professor Chang received an AB in chemistry from Princeton and a PhD in biochemistry from UC Berkeley. He joined the faculty of the Department of Nutritional Sciences and Toxicology in 1970. In 2005, he became the first professor in the UCB Faculty in Residence Program. He has had several great mentors, and he has worked to mentor his own students, both in person and in the Social Media. He is the "owner" of "STUDY TIPS and OTHER GOOD THINGS," a student-oriented Facebook group with over 11,000 members.

Political Economy 24, Section I
Political Economy in Contemporary Perspective (1 unit, P/NP)
Senior Lecturer Alan Karras
Tuesday 4:00-5:00, 203 Wheeler Hall, CCN: 71203

This seminar will require students to engage with current events, international and domestic, through the lens of political economy. Those who are enrolled will be required to read The New York Times and/or The Economist each week, identify issues of political economy that are being discussed, and present them to their peers for discussion. Differing perspectives on the news, as well as the different ways in which political economy theorists would interact with the events, will be discussed. Students should expect vigorous engagement and critical thinking.

Alan Karras is Associate Director of and Senior Lecturer in the International and Area Studies Academic Program. He is the author of *Smuggling: Contraband and Corruption in World History*, as well as several other books and articles on similar subjects. He is currently the Lead Media Author for a forthcoming concise edition of a World History textbook, as well as working on his own book on corruption in the British East India Company. He previously served as the Chair of the AP World History Development Committee for the College Board (as well as several other committees). He is also a member of the Boards of Editors for Cambridge University Press's forthcoming *Dictionary of World History* and the nine-volume *Cambridge World History*. In addition to smuggling and corruption, his research interests are in eighteenth-century Caribbean history, especially as it relates to more recent global issues in political economy.

Faculty web site: <http://iastp.berkeley.edu/People-Detail/Alan%20Karras>

Portuguese 24, Section I
Hello Brazil: Literature, Arts, Society (1 unit, P/NP)
Professor Candace Slater
Thursday 2:00-3:00, 262 Dwinelle Hall, CCN: 86603

This seminar offers a description of Brazil—a vast and varied country—through some of its major literary and artistic expressions. It provides a sense of roots for some of the challenges that Brazil is currently facing as well as a notion of its shifting identities. The title "Hello Brazil" comes from a celebrated film about cultural and economic change. **This course would be most engaging for students curious about Brazil. Students who have a more general interest in Latin America are welcome, but this is not required.**

Candace Slater teaches Brazilian literature and culture, as well as courses on the Amazon, in the Department of Spanish and Portuguese. She has a secondary affiliation with the Energy and Resources Group. She is the author of seven books and many articles and has traveled widely throughout Latin America and the Iberian Peninsula.

Faculty web site: <http://spanish-portuguese.berkeley.edu/our-faculty/>

Psychology 24, Section I
The Shattered Mind (1 unit, P/NP)
Professor Mark D'Esposito
Monday 12:00-1:00, 10 Giannini Hall, CCN: 73713

In this seminar, we will read and discuss chapters from a book entitled "The Shattered Mind" by Dr. Howard Gardner. As Dr. Gardner states, "It is my purpose in this book to demonstrate that a host of critical issues in psychology can be illuminated by a thoughtful study of the behavior and testimony of brain-damaged individuals." Such topics will include aphasia, amnesia and the frontal lobe syndrome. The case studies that are presented in the book will be supplemented by patients seen and cared for by Dr. D'Esposito, who is a practicing neurologist.

I am a Professor of Neuroscience and Psychology, Director of the UC Berkeley Brain Imaging Center as well as a practicing neurologist.

Faculty web site: <http://despolab.berkeley.edu>

Slavic Languages and Literatures 24, Section I
The Mystery and Fascination of the Balkans (1 unit, P/NP)
Professor Ronelle Alexander
Wednesday 8:00-9:00, 6115 Dwinelle Hall, CCN: 79717

The Balkans as a region have always fascinated Westerners, ranging from intrepid eighteenth- and nineteenth-century travelers seeking the exotica of “Turkey in Europe” to their modern cohorts who become enamored of Balkan culture, and especially its music—a fascination so great that a group of middle-aged and elderly Bulgarian women who were known at home as The Bulgarian State Television Female Vocal Choir could be marketed in the West as “Le mystère des voix bulgares” (The Mystery of Bulgarian Voices), win a Grammy, and have their songs used on the soundtrack of Xena: Warrior Princess. But the Balkan region is fascinating in a negative sense as well, that sense which has given our language the verb “to balkanize”, defined by Merriam-Webster as “to break up (as a region or group) into smaller and often hostile units.” In this class we will explore two basic questions about the Balkans: What is it that makes the region such a land of contradictions and fascination? And why—especially after the intense media attention to the violent breakup of Yugoslavia—does it remain so little understood? **No prerequisites. All interested students are welcome, both those with a Balkan background and those who know nothing about the area.**

Ronelle Alexander, Professor of Slavic Languages and Literatures (Ph.D., Harvard University), has been involved with the Balkans since she was an undergraduate. She has visited all regions of Bulgaria and former Yugoslavia, and has done extensive field work in villages throughout the southern and southeastern Balkans. Her research interests include dialectology (the relations between different geographical varieties of speech), folklore (especially the language of oral epic), and sociolinguistics (especially the relation between language and identity as connected with the breakup of Yugoslavia).

Faculty web site: <http://slavic.berkeley.edu/faculty.html>

Spanish 24, Section I
Talking Funny: Language Variation in Spanish and English Literary Texts (1 unit, P/NP)
Professor Milton Azevedo
Thursday 11:00-12:00, 5125 Dwinelle Hall, CCN: 86199

For centuries fiction authors have used literary dialects containing nonstandard spelling and regional syntax and vocabulary to represent colloquial and regional speech, foreigners’ talk, and mixed languages. Our goal in this seminar is to read passages from some of their works, analyze the ways in which nonstandard speech is represented in writing, and use that analysis as a point of departure for commenting on social and cultural implications of language variation. Spanish and English literary works to be read will include Mark Twain's *Adventures of Huckleberry Finn* and Guillermo Cabrera Infante's *Tres Tristes Tigres*. The seminar is taught in English with readings in both English and Spanish. Regular class attendance is a strict requirement, and grades will be based on required participation in class discussions and a final oral presentation on an individual project. The reader will be available at the Copy Central on 2576 Bancroft Avenue. **Although the seminar is conducted in English, students must be comfortable with Spanish—they need to understand spoken Spanish and be able to read Spanish with some fluency—about the equivalent of four years of high school Spanish minimum. PLEASE NOTE: THIS IS NOT A CONVERSATION COURSE. Students interested in taking a course focusing on conversation or otherwise**

improving their ability to speak Spanish should see the Undergraduate Assistant in the Department of Spanish and Portuguese.

Professor Milton Azevedo received his Ph.D. in Linguistics from Cornell University and has been at UC Berkeley since 1976. He has offered this seminar since spring 1999.

Faculty web site: <http://spanish-portuguese.berkeley.edu/our-faculty/>

**Spanish 24, Section 2
Latin American Photography (1 unit, P/NP)
Professor Natalia Brizuela
Monday 2:00-3:00, 104 Dwinelle Hall, CCN: 86201**

This seminar will look at Latin American photography from the late nineteenth century through the mid 1960's. We will focus in particular on production from Argentina, Brazil, Chile and Mexico as we learn how to speak critically about photographs, at the same time as we delve into the singularities of each country, learning who were the photographers, how their images circulated, and what they were made for.

Natalia Brizuela teaches in the Spanish & Portuguese Department. Her research and writing focuses on Latin American photography, film and literature. She is the author of two books on this topic: one on nineteenth-century Brazilian photography, and another one on contemporary literature and photography from Latin America. She recently edited a volume of critical essays on Argentine photographers Grete Stern and Horacio Coppola.

Faculty web site: <http://spanish-portuguese.berkeley.edu/people/faculty.html>

**Theater, Dance, and Performance Studies 24, Section I
Documentary Playmaking: School Integration, Little Rock, 1957-58 (1 unit, P/NP)
Professor Dunbar Ogden
Monday 2:00-4:00, 8 Zellerbach Hall, CCN: 88154**

This seminar will meet on Mondays for eight weeks, from September 14, 2015 through November 2, 2015.

On the fateful morning of September 4, 1957, a small group of African-American students walked up to the doors of Central High, Little Rock, to enroll in school—and were turned away by the armed National Guard. Arkansas State Governor Faubus had called out the Guard to surround the building. "Blood will run in the streets," said Faubus, "if Negro pupils should attempt to enter Central High School." A racist mob seethed out front. Eventually the courageous group of children did enter. The first of them graduated in the spring of 1958. They came to be known as the Little Rock Nine; Central High was the first major integrated public high school in the South. Nowadays many people regard their mentor, Daisy Bates, on a level with Martin Luther King, Jr. Each student in our Freshman Seminar will select a person who participated in the integration of Central High, study historical documents linked with that individual, and develop an original monologue in the role of the person, perhaps as one of the Little Rock Nine or as the Governor or as the principal of Central High. We will encourage each student to experiment with a role different from his or her own gender and cultural background. Daisy Bates' *THE LONG SHADOW OF LITTLE ROCK* and Melba Pattillo Beals' *WARRIORS DON'T CRY* will be the required books.

Professor Dunbar H. Ogden has just published a book entitled *MY FATHER SAID YES*, about the integration crisis at Central High School, Little Rock. He has developed this civil rights book in conjunction with students in his Freshman Seminars since 2000. Professor Ogden is also the author of books on actors, set design, and theatrical space.

Faculty web site: <http://tdps.berkeley.edu/people/emeritus-faculty/>

Vision Science 24, Section I
The Human Eye (1 unit, P/NP)
Professor Richard C. Van Sluyters
Friday 2:00-4:00, 394 Minor Hall, CCN: 66403

This seminar will meet approximately every other week throughout the semester, beginning the first week of the semester.

This seminar will include a series of instructor-led discussions on the structure and function of the human eye and its appendages. The use of a standard clinical instrument to view the eye will be demonstrated. Students will then employ this instrument to observe one another's eyes. Digital images of the iris will be captured and provided to each student. Examples of the types of topics to be discussed include the following: Why is the cornea so clear and the sclera so white? Why is the iris so beautifully colored? What is the fluid in the eye, where does it come from, and where does it go? How do the skull and bony orbit protect the eye without hindering its performance? How do the appendages of the eye—the eyelids and eyebrows—work, and what are their functions? How does the eye adjust its focus from far to near, and why do we lose this ability with age? How do contact lenses work, and what happens to the cornea when laser refractive surgery is performed? What structural and functional changes in the eye are found in various ocular diseases?

Professor Richard C. Van Sluyters joined the faculty of the School of Optometry in 1975 and currently serves as the School's Associate Dean for Student Affairs. He received his undergraduate training at Michigan State University, studied optometry at the Illinois College of Optometry and was a graduate student at Indiana University. He holds doctorates in optometry and vision science and was a postdoctoral fellow at Cambridge University in England. He teaches courses on the anatomy and physiology of the eye and visual system.

Faculty web site: <http://vision.berkeley.edu/VSP/content/faculty/facprofiles/vansluyters.html>

FRESHMAN AND SOPHOMORE SEMINARS

Most of the following courses are limited to 20-25 students. First- and second-year students are given priority for enrollment. Most of these courses fulfill Letters and Science breadth requirements; consult *A Guide for Students in the College of Letters and Science: Earning Your Degree*. If a course is designated as requiring the consent of the instructor, or if you would like additional information, please contact the undergraduate assistant in the department offering the seminars.

Comparative Literature 41B, Section I Studies in Lyrics (4 units, LG)

Monday, Wednesday, and Friday 2:00-3:00, 255 Dwinelle Hall, CCN: 17284

This course will offer a comparative introduction to lyric poetry across different linguistic traditions (including poems originally composed in Chinese, English, French, German, Greek, Italian, Japanese and Spanish). While we may consider different definitions and origin stories of the lyric genre—as muted song, verbal picture, overheard speech, or emotive expression—our main focus will be on learning how to read and write about poetry in its shorter forms. You will be encouraged to read in the original when possible, but all readings will be provided in English.

Poetry by Sappho, Ovid, Petrarch, Shakespeare, Bashō, Shiki, Keats, Baudelaire, Dickinson, Rilke, Lorca, Bishop, and Niedecker, among others. This seminar may be used to satisfy the Arts and Literature breadth requirement in Letters and Science.

Computer Science 39T, Section I Berkeley Through the Lens (2 units, P/NP) Professor Brian Barsky Tuesday 12:00-2:00, 606 Soda Hall, CCN: 25899

Students in this seminar will actively examine UC Berkeley "through the lens" on a photographic journey emphasizing activism and political engagement on campus, both historically and recently. In addition to exploring photographic technique in general, this seminar will stress awareness of both historical and current events. The objectives of this class include improving skills for both photographic technique and civic engagement. This seminar will study photographs and learn photographic technique. The seminar has both photographic and brief writing assignments. Students are required to take photographs on a weekly basis and these photographs will be critiqued in class as time permits. A background and experience in photography is recommended. Students must have access to a camera to do the course assignments. Recommended specifications for the camera include manual control of exposure and focus and the capability of changing the focal length (wide-angle and telephoto). To hone photographic skills, aesthetic, semantic, and technical aspects of photography will be discussed. As time permits, possible photography topics may include quality of light, dynamic range, exposure control, depth of field, composition and patterns, perspective, color science, the human visual system, and perception.

The seminar emphasizes civic engagement and is not intended to be primarily a photography course. Political discussion will be an integral part of the seminar. Class participation is essential. The class includes visits to campus museums, galleries, and archives.

In addition to the requirement of completing weekly assignments, attendance at all classes and other course-related activities is required to receive a "pass" grade, except for prior arrangement with the instructor or documented emergencies. "Guidelines Concerning Scheduling Conflicts with Academic Requirements" by the Committee on Educational Policy state, "If unforeseen conflicts arise during the course of the semester students must promptly notify the instructor and arrange to discuss the situation

as soon as these conflicts (or the possibility of these conflicts) are known" and "faculty may decline to enroll students in a class who cannot be present at all scheduled activities."

This seminar is not about the subject of computer science even though it is offered through the Computer Science Division. Students from all academic disciplines are welcome.

This seminar is part of the Food for Thought Seminar Series. The first class session will not be held in the classroom; all students enrolled or waitlisted for this seminar should be in direct contact with Professor Barsky in advance of the first class session for details about where to meet. Additional field trip information and Food for Thought dining details will be discussed in class.

This seminar is part of the Connections@Cal initiative. This seminar is part of the Food for Thought Seminar Series.

Brian Barsky received his Ph.D. from the University of Utah in Computer Science and joined the UC Berkeley faculty in 1981. His research interests include computational photography, contact lens design, computer methods for optometry and ophthalmology, image synthesis, computer aided geometric design and modeling, CAD/CAM/CIM, interactive and realistic three-dimensional computer graphics, visualization in scientific computing, computer aided cornea modeling and visualization, medical imaging, and virtual environments for surgical simulation.

Faculty web site: <http://www.cs.berkeley.edu/~barsky>

German 39N, Section I

Imagined Environments: How Have Literature and Art Contributed to Modern Environmental Consciousness? (3 units, LG)

Professor Paul Buchholz

Monday, Wednesday, & Friday 1:00-2:00, 250 Dwinelle Hall, CCN: 37269

This seminar examines the imagination of natural environments in German literature and visual media from the eighteenth century to the present. We will study how poetic and artistic works have modeled the relationship between landscapes and human life, as well as between the natural and the artificial. Over the course of the semester, we will consider how different aesthetic approaches to environment have figured within political and social movements concerned with conservation, "natural living," industrial pollution, nuclear power, consumerism, and sustainability. **Readings and discussions will be in English.**

Professor Buchholz received his BA in German Literature from the University of Wisconsin, and his MA and PhD in German Studies from Cornell University. His academic focus is on twentieth- and twenty-first-century German prose fiction; experimental narrative forms; theories of family, community, and solidarity; and ecology and environmentalism in German-language literature after 1968.

Jewish Studies 39L, Section I

Gender and the Body in Yiddish Literature (2 units, LG)

Graduate Student Instructor Anna Torres

Wednesday 2:00-4:00, 201 Giannini Hall, CCN: 47803

This course will explore the representation of the body and gender in Yiddish literature, particularly engaging with questions of race, dis/ability, and spirituality. Literature will span both religious and secular texts, from medieval memoir to 20th Century experimental poetry. Using gender theory as a lens into the world of Yiddish writing, we will encounter medieval women troubadours and healers, spirit possession, and avant-garde performance. **Familiarity with Yiddish is not required. All literature will be in English translation.**

Torres is a native of the Bronx and a doctoral student in Jewish Studies with a designated emphasis in gender, women, and sexuality. Her current research focuses on the development of Yiddish modernist poetry in relation to the radical press. Her other research interests include translation theory, ethics, comparative religion, and labor history. In the Bay Area, she has taught Yiddish and literature at the Contemporary Jewish Museum, Lehrhaus Judaica, and the Workmen's Circle/Arbeter Ring. She has also worked at oral history archives and as a community muralist.

Journalism 39L, Section I

Prison Life in Movies and TV: Media Images of the Culture of Punishment 1930-2014 (1.5 units, LG)

Professor William J. Drummond

Monday 2:00-3:30, 209 North Gate Hall, CCN: 48003

The seminar will explore society's shifting notions of prison life, as evidenced by movies and TV programs. The students will view each week an important piece of cinema or television. Each example will be a launching pad into a discussion of themes of race, class and gender; identity; criminal justice; incarceration per se; crime; deviance and social control. The class will begin with vintage penitentiary movies (The Big House, starring Wallace Beery, 1930) and follow the evolution of the genre through the Netflix hit series, Orange Is The New Black. The viewing experience will be supplemented by readings, including McLennan, R.M. (2008) "The crisis of imprisonment." **This seminar is part of the Connections@Cal initiative. This seminar is part of the Food for Thought Seminar Series.**

William J. Drummond joined the faculty in 1983 after a career in public radio and newspapers. He has worked as an adviser to the San Quentin News since 2011. In 2014 San Quentin News was awarded the James Madison Freedom of Information Award from the Society for Professional Journalists for its work in raising the public's awareness about mass incarceration. From 1979 to 1983 Prof. Drummond worked in Washington for National Public Radio, where he was the first editor of Morning Edition before moving on to become National Security Correspondent. He has produced documentary-length radio programs on a wide range of subjects: Native Americans and welfare reform; jazz diva Betty Carter; Allensworth: the pioneering Negro colony in the California Central Valley; a profile of a psychiatrist whose specialty is interviewing serial killers; the early Jim Crow days in Las Vegas; an examination of why Americans are turned off by the political system; and a look at the tension between Malcolm X and Martin Luther King, as seen through the eyes of youth. His honors include a 1989 citation from the National Association of Black Journalists for "Outstanding Coverage of the Black Condition," the 1991 Jack R. Howard Award for Journalism Excellence, and a 1994 Excellence in Journalism Award from the Society of Professional Journalists' Northern California Chapter for an advanced reporting class experiment in civic journalism. He was a member of the planning committee that created the Public Radio International program The World.

Faculty web site: <http://journalism.berkeley.edu/faculty/drummond/>

Legal Studies 39D, Section I

Current Political and Moral Conflicts and the U.S. Constitution (2 units, LG)

Mr. Alan Pomerantz

Monday 10:00-12:00, 203 Wheeler Hall, CCN: 51506

The debate about morals has moved steadily into the realm of the Supreme Court, but people differ on what exactly the role of the Court should be. Some have strongly argued that the Court's interpretation and application of the Constitution have adversely affected our fundamental rights and usurped powers from other branches of government. This position claims the Court has created an "Imperial Judiciary." Others argue as strongly that the Court has acted properly to protect fundamental freedoms and individual rights in the face of unprecedented political and governmental efforts to limit them. This position claims the Court has, in fact, fulfilled the role envisioned for the Court by the Constitution. This seminar will follow the Socratic method in examining moral and political issues that have a constitutional

basis and the Court's participation in the debate on topics such as gay rights (including gay marriage), gun control, abortion, privacy, symbolic speech, college speech codes, "hate" speech, euthanasia and racial profiling. We will read Supreme Court cases, as well as political and legal commentary from across the political spectrum, and consider not only the opinions of the Justices, but also why they hold those opinions. Students will be asked to develop and apply critical thinking skills and are expected to develop and support their own views and opinions regarding the relevant topics.

Alan J. Pomerantz, Esq., is a practicing lawyer and Senior Counsel at Pillsbury Winthrop Shaw Pittman, a major international law firm. A graduate of the NYU School of Law, he also studied in Chile and received an advanced legal degree from the University of Amsterdam (Netherlands). He has lectured and taught widely, including at the NYU School of Law, NYU College of Arts and Science, the University of Amsterdam, Columbia Graduate School, and the University of Concepcion (Chile). He has published numerous articles and contributed to several treatises on legal topics. Mr. Pomerantz is recognized by several peer publications as one of the world's leading lawyers. Mr. Pomerantz has participated in important and controversial matters affecting individual rights, including death penalty appeals, right of public artistic expression, right of privacy for acts of consenting adults, and numerous free speech cases.

Legal Studies 39G, Section I

Elephants, Silt, Mercury, and Law: Managing the Environment in East Asia (3 units, LG)

Dr. Jonathan Marshall

Tuesday and Thursday 8:00-9:30, 179 Stanley Hall, CCN: 51505

"Elephants, Silt, Mercury, and Law" examines how law and rules have affected resource management and environmental degradation in China and Japan. The course compares the experiences of Northeast Asian societies over three time periods: before 1850, 1850 to 1970, and 1970 to the present. Both China and Japan faced important resource management challenges before the arrival of Western imperialism and the industrial organization of production in the period just prior to 1850. From 1850 to 1970, East Asia industrialized and experienced colonialism and decolonization, which created new demands for natural resources and more acute environmental degradation. After 1970 changes in society and politics brought new efforts to reduce pollution in Japan and the rest of the industrialized world. At the same time, China made the transition to a market economy and replayed the problems of the earlier era of rapid industrialization on a much larger scale and with serious global consequences. Students will learn how law and social, economic, and political institutions have affected the natural environment in East Asia, which historically has been a major part of the global economy and often the first region to face challenges of pollution and resource management. **Students interested in East Asia, the role of state and society in rule-making, or natural resource issues are invited to participate.**

Jonathan Marshall has taught courses on law and society, public law, comparative politics, and East Asia. His research focuses on the political use of law and citizen litigants in Japan, where he lived in 1988-89 and 1997-2000.

Dr. Marshall's publications include "Democratizing the Law in Japan" in Alisa Gaunder, ed., *A Handbook of Japanese Politics*, London: Routledge (2011); "Who Decides the Role of Courts, State or Society?" in Harry N. Scheiber, ed., *Emerging Concepts of Rights in Japanese Law*, Institute for Legal Research, Boalt Hall School of Law, UC Berkeley (2007); and "Casual Cynics or Disillusioned Democrats? Political Alienation in Japan," *Political Psychology* 21: 779-804 (December 2000).

Jonathan Marshall has a Ph.D. and M.A. in Political Science from the University of California-Berkeley, and a B.A. in East Asian Studies from Yale University. He taught at Carthage College from 2005 to 2015 and joins the Legal Studies Program in Fall 2015.

Materials Science and Engineering 39A, Section I
The Berkeley Experience (1.5 units, P/NP)
Professor Kal Sastry
Thursday 5:00-6:30, 237 Cory Hall, CCN: 53003

Please note that the class is regularly scheduled for one and one half hours each week; however, it may be extended two hours on two or three field trip days. Accordingly, we may reduce the number of weekly meetings to adjust the total seminar hours to 21 in the semester. The first seminar meeting will be on August 27, 2015.

The University of California at Berkeley is a treasure house of resources: top quality students, staff and professors; remarkable lecture, lab and seminar classes and facilities; exciting athletic, student and political activities; and so on. The city of Berkeley and the San Francisco Bay Area themselves are unique and resource rich. At times, Berkeley may feel impersonal, even alienating for new freshman as well as for returning sophomore students, but increased awareness and prior planning will result in the greatest Berkeley experience. The Berkeley Experience seminar is intended not only for freshman but also for sophomores so they can share their first-year experiences with freshmen and work together. This is found to provide a mutually enriching experience of getting the best and most out of Berkeley and the Bay Area. To this end, the seminar activities will be highly action oriented and carried out at the individual, small group or class level and consist of 1) Workshop-style classroom sessions sharing mutual thoughts, priorities, and experiences; 2) Field trips to professors' offices, campus events, laboratories, libraries, local restaurants, and local area sites; and 3) Development of a personal plan for a unique Berkeley experience and beyond. This seminar is offered for P/NP and the grade will be assigned based on active and full participation in all the classroom sessions and field trips. **This seminar is part of the Connections@Cal initiative.**

Kal Sastry is a Professor Emeritus in the Department of Materials Science and Engineering. His teaching and research interests are in the broad field of minerals processing. He always enjoys working with freshmen and sophomores and loves to teach lower-division undergraduate classes including freshman seminars on "The Story of Gold" and "The Berkeley Experience." During the past several years, Professor Sastry has been extremely active with offering customized training programs to the minerals industry. This year, he looks forward to repeating the highly successful and exciting seminar on "The Berkeley Experience."

Native American Studies 90, Section I
Native Americans and the American Novel (4 units, LG)
Lecturer Enrique Lima
Tuesday & Thursday 9:30-11:00, 175 Barrows Hall, CCN: 61218

The history and cultures of Native Americans continue to fascinate many people. But how does the way we imagine them relate to the challenges confronting Native American communities? In this seminar we will examine how Native Americans have been portrayed in four major American novels: *The Last of the Mohicans* by James Fenimore Cooper, *Death Comes for the Archbishop* by Willa Cather, *The Sunflower* by D'Arcy McNickle, and *Love Medicine* by Louise Erdrich. Along with learning how to read literature closely, we will also investigate the problems facing Native Americans and discuss the possible solutions posed by these novels. This seminar may be used to satisfy the Historical Studies or Social and Behavioral Sciences breadth requirement in Letters and Science.

Enrique Lima has taught at the University of Oregon and has been teaching at University of California, Berkeley for the last three years. His primary research is in the novelistic representation of Native peoples throughout the Americas. There is little that he enjoys more than teaching novels.

Native American Studies 90, Section 2

Myth, Memory, and History: Understanding Native America (4 units, LG)

Lecturer Diane Pearson

Monday, Wednesday and Friday 11:00-12:00, BI Hearst Annex, CCN: 61221

This course provides an overview of the history of the indigenous peoples of the Western Hemisphere, and proceeds from the premise that knowledge of Native America is essential to the study of the Western Hemisphere. It will survey a number of societies, cultures, lifestyles, and contemporary and historical issues. This seminar may be used to satisfy the Social and Behavioral Sciences or Historical Studies breadth requirement in Letters and Science.

Dr. Pearson holds a Ph.D. in American Indian Studies and specializes in American Indian law and policy, societies and culture, and education.

Faculty web site: <http://ethnicstudies.berkeley.edu/faculty/profile.php?person=70>

Slavic Languages and Literatures 39C, Section I

Images of Eastern Europe: Cold War: Fear, Conspiracies, Spies, and Noir (3 units, LG)

Professor David Frick

Tuesday & Thursday 3:30-5:00, 183 Dwinelle Hall, CCN: 79718

With much talk and writing now focusing on a Second Cold War (Cold War II), it may be a good time to take a look at some aspects of the original Cold War, conventionally and loosely dated from the end of World War II (1945) to the Fall of the Berlin Wall (1989) and the dissolution of the Soviet Union (1991).

We will range across history and politics, literature and film—some classics in the usual sense of the world, some just “classic” for a variety of other reasons.

We will begin our reading with George Orwell's *1984* (1949). We will then shift to Richard Lineman's 2012 *The Noir Forties: The American People from Victory to Cold War*, based largely on popular media, including film. Richard M. Fried's short and lively *Nightmare in Red* (1991) will take up the “Red Scare” as it led to the rise and fall of Senator Joseph R. McCarthy. Eugene Harvey and Burdick Wheeler's 1962 *Fail-Safe* was a must-read in its decade, a story about a “small accident” with a nuclear defense system. We will then backtrack and shift focus a bit to Graham Greene's 1955 *The Quiet American*, a novel about a naïve American leading the coming waves of American advisers and then troops into the Viet Nam War. John Le Carré's *Tinker, Tailor, Soldier, Spy* may be one of the best ever espionage novels about the U.S.-Soviet covert wars in Central Europe. Our reading will end with John Lewis Gaddis's recent (2005) survey of the topic, *The Cold War: A New History*.

Along the way, we will view (in class) a variety of films that offer a counterpoint to our readings: *The Third Man*, *Dr. Strangelove*, *I Was A Communist for the FBI*, *The Red Menace*, *The Spy Who Came in from the Cold*, and *The Manchurian Candidate*. **Course requirements: attendance (20%) active participation in class discussion of the readings and the films (20%), two mid-term short-essay exams (30% total), and a final essay exam (30%).** This seminar may be used to satisfy the Arts and Literature or International Studies breadth requirement in Letters and Science.

Professor Frick has spent many months since 1980 conducting research in Poland, Lithuania, Russia, and Germany. His main area of interest is in the cultural history of early modern Poland, Lithuania, Belarus, and Ukraine, and he has devoted special attention to conflicts between social authorities and personal identities.

Faculty web site: <http://slavic.berkeley.edu/faculty.html#frick>

**South and Southeast Asian Studies 39K, Section I
Camouflaging the Chimera: African American Voices and Visions of Vietnam (2 units, LG)**

Professor Penny Edwards

Monday 2:00-4:00, 332 Giannini Hall, CCN: 83511

This new, interdisciplinary seminar invites you to explore African American voices and visions of the Vietnam war through oral history, music, fiction, poetry, cinema and other primary sources. For historical and contemporary context, we begin with reflections on and depictions of African American veterans of the American Civil War, Korea, and Iraq, via Natasha Trethewey's Pulitzer prize-winning *Native Guard* (2007), Toni Morrison's *Home* (2012), and David Oyelowo's *Nightingale* (2015). Novelist Judy Juanita then takes us to the Vietnam war era with *Virgin Soul* (2013), which traces Berkeley born freshman Geniece's journey from Oakland City College through her involvement with the Black Panthers to her graduation from San Francisco State. War correspondent and writer Wallace Terry's path-breaking *Bloods* (1984) brings us memories and life-stories of African Americans deployed to Vietnam. Pulitzer poet Yusuf Komunyakaa's *Dien Cai Dau* (1988) offers us a powerful and lyrical lens on both the war and the Washington memorial. We examine songs of protest and other forms of musical expression ranging from Jimmy Cliff's *Letter from Vietnam* to Sammy Davis Jr.'s 1972 tour of South Vietnam. We consider the roles and representations of African American forces and peace activists in *Apocalypse Now*, *Dead Presidents*, *Tropic Thunder*, *Butler* and *Selma*. Our other sources include the speeches and writings of Dr. Martin Luther King, Muhammad Ali, Stokely Carmichael; the voice of "Hanoi Hannah," whose radio broadcasts targeted African American troops in Vietnam; and war era cartoons, comics and photography. Thanks to the generosity of the author and a grant from the Freshman Seminar Program, all students on this course will receive a complementary copy of *Virgin Soul*. The seminar will include class visits by Judy Juanita and by Theater & Performance Studies graduate student, Paige Johnson. **Grading is weighted at 50% for active and prepared participation in class discussion; 10% for one fifteen-minute oral presentation on a class topic; and 40% for a written, audio, visual or audio-visual assignment of your own design (such as an oral history, a photographic essay, a short story, or a short film), to be determined in consultation with the instructor. This seminar is part of the Food for Thought Seminar Series.**

Penny Edwards is Associate Professor of Southeast Asian Studies. Best known for her work on the cultural and political history of Cambodia and Burma, her research and teaching interests include nationalism, colonialism, Buddhism, and gender and racial identities. She was awarded the 2009 Harry J. Benda prize (<https://www.asian-studies.org/publications/book-prizes-benda.htm>) for her book *Cambodge: The Cultivation of a Nation, 1860-1945*, has co-edited seven volumes including *Mediating Chineseness in Cambodia* (with Lorraine Patterson), <https://cross-currents.berkeley.edu/e-journal/issue-4>, *Pigments of the Imagination: Theorizing, Performing and Historicizing Mixed Race* (with Debjani Ganguly and Jacqueline Lo), *Lost in the Whitewash: Aboriginal-Asian Encounters in Australia, 1901-2001* (with Shen Yuanfang), and has published over twenty articles on Cambodia, Burma, and Chinese diaspora.

Faculty web site: <http://sseas.berkeley.edu/people/faculty/penny-edwards>

**Undergraduate Business Administration 39AC, Section I
Philanthropy: A Cross-Cultural Perspective (3 units, LG)**

Mr. Colin P Lacon and Ms. Karina Moreno

Thursday 8:00-11:00, C320 Cheit Hall, CCN: 07866

This class will compare and contrast the variety of gift-giving, engagement and sharing traditions that make up American cultures. Both the cultural antecedents and their expression in this country today will be explored among a number of different ethnic groups. The goal is to gain greater understanding and appreciation of the many dimensions of philanthropy and community engagement as they are practiced in the United States today. This course fulfills the American Cultures requirement.

Colin Lacon is the President and CEO of Northern California Grantmakers (NCG). NCG works to support and strengthen its members and promote effective philanthropy. Previously, he served six years as Senior Program Officer for the Strengthening Communities Program at the Stuart Foundation, and he held several positions for the City of Oakland, including director of strategic grants management in the Office of the City Manager.

Karina Moreno has spent her career in the social sector with a focus on poverty alleviation. Prior to joining Tipping Point, she was a Program Officer at the Y & H Soda Foundation where she developed and implemented a \$2 million annual grants portfolio to help low-income families achieve economic prosperity through income growth and asset building strategies. Karina has also worked on policy and advocacy issues affecting underserved children, including serving as Deputy Director at the Children's Defense Fund in California. She earned her Bachelor of Arts in Communication Studies and Women Studies at the University of California Los Angeles and received her Master of Public Policy from Harvard University. A native Californian, Karina and her family love to hike and camp along the coast or in the Sierra Nevada mountains.

Undergraduate Business Administration 39E, Section I
The Five Gospels: A Humanist Perspective (2 units, P/NP)
Professor Mark Rubinstein
Wednesday 2:00-4:00, F678 Haas (School), CCN: 07868

Christianity is the world's most successful religion in terms of numbers, claiming today about two billion adherents, or about one out of every three people on earth. How did that happen? To answer this question at least partially, we will look carefully at the world of "early Christianity," particularly at the first century AD, the time the foundational documents of the religion were written, especially the the four biblical Gospels and the letters of Paul.

We will take a look at the Western World before, during and after the start of Christianity to see what was lost, why Christianity succeeded, what it brought, and what the future might bring. The highlight of the course will be the study of a "New (fifth) Gospel," which is arguably more responsive than the biblical gospels to the ethical problems of the modern world. **Students need to be prepared for an uncompromising dissection of these early Christian documents. Discussion of religion can be delicate. Students should be ready for a dispassionate, critical and two-sided treatment of Christianity and related religions, particularly Paganism and Judaism, early Christianity's main competitors. We will be evaluating the literary persuasiveness and veracity of the biblical Gospels and Paul's most important letter as well as what they reveal about human psychology.**

Mark Rubinstein is a Professor of Finance in the Haas School of Business (now emeritus). He is best known for his research in asset pricing and derivatives. In 2006, he published his most recent book, "A History of the Theory of Investments" (Wiley). Since then he radically changed the focus of his interest to Western intellectual history. During the last two years, he has published nine essays on early Christianity in the magazine/journal Free Inquiry (for which he is now a regular contributing columnist) and one in Skeptical Inquirer. He has completed a trilogy called the New Gospel (currently unpublished) that is the basic text for this course.

Vision Science 39, Section I
Planning for the Berkeley Global Campus and Richmond Bay (2 units, P/NP)
Professor Stanley Klein
Tuesday 2:00-3:30, 394 Minor Hall, CCN: 66408

This Freshman / Sophomore seminar will explore the future involvement of UCB undergraduates in the recently announced plan for the "Berkeley Global Campus at Richmond Bay." This project has the ambitious goal that instead of building campuses in Japan/Singapore/etc., we invite them to build on our

future global campus on our large property in Richmond. For lots of details I strongly recommend looking at: <http://chancellor.berkeley.edu/berkeley-global-campus-richmond-bay> and <http://diversity.berkeley.edu/anchor-richmond> (the awesome Haas Institute document).

The seminar will explore the possibilities for future involvement of UCB undergraduates in this project. We will invite to the seminar representatives from the various factions involved in the project: students, faculty, staff, unions, administration from our campus and LBNL and also diverse representatives from the city of Richmond. We would also make use of resources from the UCB Public Service Center and the UCB Haas Institute. The citizens of Richmond expect cooperation from UCB on a wide variety of issues. If done well there can be major benefits to our university and to the citizens of Richmond regarding employment and education. One of the most interesting aspects is that there are complex and potentially conflicting needs among the various groups. The special aspect of this particular topic is that it is in its very early stages of development where new ideas are possible. These issues would be discussed in the seminar.

Stanley Klein is a physicist doing research on how our brains do vision. He is also active with various groups devoted to improving communications between science and religion. Relevant to this seminar is his commitment to finding approaches for our society to function better in meeting the challenges of the future. One of his particular interests is how to resolve controversies. The Berkeley Global Campus at Richmond Bay offers many challenges and opportunities dealing with these difficult complex issues.

Faculty web site: <http://cornea.berkeley.edu>

SOPHOMORE SEMINARS

The following courses are limited to 15 students. Each is offered for one or two units of credit. Second-year students will be given priority for enrollment. Courses designated P/NP may be taken pass/no pass only; courses designated LG may be taken for a letter grade or on a pass/no pass basis. If a course is designated as requiring the consent of the instructor, or if you would like additional course information, contact the undergraduate assistant in the department offering the seminar.

Astronomy 84, Section I

Black Holes (2 units, P/NP)

Professor Steven Beckwith

Wednesday 1:00-3:00, 501 Campbell Hall, CCN: 06227

The seminar discusses the physics of Black Holes, the evidence for their existence, and some of the interesting implications that black holes pose for the universe. Using Kip Thorne's book, "Black Holes and Time Warps; Einstein's Outrageous Legacy," we will delve into the ordinary predications about black holes—space-time curvature, time dilation, the dangers of getting too close, the central singularities, frame dragging—as well as some of the more exotic predictions like black hole evaporation and even wormholes. Although the concepts in this course are not intuitive for most students, they can be understood by anyone with a background in high school physics and first-year college math, and they provide an excellent basis to learn how to reason about new ideas in science. The class will stress quantitative reasoning and the use of numbers and quantitative predictions as a method of understanding nature without using mathematics beyond first year calculus. Students most likely to profit from this class should have preparation equivalent to first-year college-level courses in physics and mathematics and need not be majors in physical science or engineering. All students will learn the fundamentals of special relativity and the rudiments of general relativity in the first two weeks of class.

Steven Beckwith is the Vice President for Research and Graduate Studies for the UC system and a Professor of Astronomy at Berkeley. He came to Berkeley most recently from Baltimore, Maryland, where he was the Director of the Space Telescope Science Institute, responsible for the science operations of the Hubble Space Telescope, and a Professor of Astronomy and Physics at Johns Hopkins University for nine years. Previously, he was Director of the Max Planck Institute for Astronomy in Heidelberg, Germany for seven years and a Professor of Astronomy at Cornell University for thirteen years. His research interests include the creation of galaxies in the early universe, the formation of planets around other stars, and the detection of life on extrasolar planets.

Faculty web site: <http://www.ucop.edu/research/beckwith.html>

English 84, Section I

High Culture, Low Culture: Modernism and the Films of the Coen Brothers (2 units, P/NP)

Professor Julia Bader

Wednesday 2:00-5:00, 300 Wheeler Hall, CCN: 28312

We will concentrate on the high and low cultural elements in the noir comedies of the Coen brothers, discussing their use of Hollywood genres, parodies of classic conventions, and representation of arbitrariness. We will also read some fiction, including stories from Jhumpa Lahiri's *Interpreter of Maladies*, and some or all of Katherine Boo's *Behind the Beautiful Forevers*, and attend events at the Pacific Film Archive and Cal Performances. **This seminar is part of the Connections@Cal initiative. This seminar is part of the On the Same Page initiative.**

Julia Bader is a Professor Emerita in the English Department and specializes in the modern period, both British and American, with an emphasis on fiction, film, and feminism.

Faculty web site: <http://english.berkeley.edu/profiles/11>

Natural Resources 84, Section I
Global Environment Theme House Sophomore Seminar (1 unit, P/NP)
Professors J. Keith Gillless and Allen Goldstein
Monday 5:00-6:00, 430I Foothill 4 - Classroom A, CCN: 61406

After the formal sessions, the professor and students may continue their discussion informally over dinner in the Dining Commons. Food for Thought dining arrangements and field trip arrangements will be discussed in class.

The goal of this Sophomore Seminar is to bring students and faculty together to explore issues such as global environmental change, policy and management of natural resources, sustainable rural and urban environments, and environmental leadership. The seminar will provide students and faculty a forum to exchange ideas, challenge one another's thinking, and share experiences in a small group setting. Students will have the opportunity to do research and teach their peers about regional to global environmental issues in preparation for Theme Program field trips and guest speakers. **Course enrollment is restricted to Global Environmental Theme House participants. Obtain CEC from the instructor. This seminar is part of the Food for Thought Seminar Series.**

J. Keith Gillless is a professor of forest economics and dean of the College of Natural Resources. His degrees are in forestry and agricultural economics from Michigan State University and the University of Wisconsin. He has been a member of the Berkeley faculty since 1983. His research and teaching interests include wildland fire protection, environmental economics, international forestry development, biofuels and a lot of other things.

Faculty web site: http://ourenvironment.berkeley.edu/people_profiles/j-keith-gillless/

Allen Goldstein is Professor in the Division of Ecosystem Science in the Department of Environmental Science, Policy and Management. He received a B.S. in Chemistry and a B.A. in Politics from UC Santa Cruz, and a Ph.D. in Chemistry from Harvard University. His research addresses the interface between natural and anthropogenic influences on regional and global atmospheric composition and chemistry. He will lead the field trips.

Rhetoric 84, Section I
An Introduction to Public Speaking (1.0 unit, P/NP)
Professor Daniel F. Melia
Tuesday 1:00-2:00, The Berk on Arch St. (2311 Le Conte Ave.), CCN: 77856

The class is an introduction to the principles and practice of persuasive public speaking. **The course will be taught (slightly) off-campus at The Berk on Arch Street, home of the Bowles Hall Residential College Phoenix Group. Any Sophomore interested in learning effective public speaking is welcome.**

Professor Daniel Melia has taught in the Rhetoric Department since 1972. He has a strong interest in oral modes of discourse.

Faculty web site: http://rhetoric.berkeley.edu/people.php?page_id=1056&p=62

South and Southeast Asian Studies 84, Section I
Contemporary Southeast Asian Society and Culture through Film (2 units, LG)
Dr. Maria Josephine Barrios-Leblanc, Mr. Frank Smith and Mr. Bac Tran

Friday 4:00-6:00, 78 Barrows Hall, CCN: 83533

In this seminar we will examine contemporary Southeast Asian society and culture through the lens of contemporary Southeast Asian films, three each from Thailand, Vietnam and the Philippines. In discussions about the films in class we will seek to understand how these films mirror modern and traditional aspects of the societies in which they were produced. We will also consider the films as examples of current world cinema and vehicles of storytelling. In their four-page papers for each section of the course, students will address the above broad issues (referencing class discussions when appropriate) in relation to their own experiences and opinions, focusing either on one film or comparing two or three from the same country. **Students should plan to participate actively and consistently in class discussions, remembering that class participation makes up 25% of the grade in the course. Previous knowledge of or personal experience with Southeast Asian societies and cultures, and if possible Southeast Asian film, is desired but not required. Students with no previous knowledge of Southeast Asia who have experience watching and discussing a wide range of films from other countries with a critical eye are also welcome.**

This seminar is part of the Connections@Cal initiative. This seminar is part of the On the Same Page initiative.

Joi Barrios has a Ph.D. in Filipino and Philippine Literature. She is the author of five books, among them the poetry collection *To Be a Woman is to Live at a Time of War* and her research, *From the Theater Wings: Grounding and Flight of Filipino Women Playwrights*.

Faculty web site: <http://sseas.berkeley.edu/people/faculty/joi-barrios-leblanc>

Frank Smith has taught Khmer language since 1990 (since 2008 at UCB). He has done anthropological research on Khmer and Thai culture, taught a workshop on subtitling Southeast Asian film, taught classes on the Ramayana in Southeast Asian adaptation, and previously lived in Thailand for six years.

Faculty web site: <http://sseas.berkeley.edu/people/faculty/frank-smith>

Bac Hoai Tran has a Master's degree in English with a concentration in Linguistics from San Francisco State University. He is the author of the textbook *Conversational Vietnamese* (2008), and is a coauthor of the *Vietnamese Practical Dictionary* (2010) and *Living with English* (2001). He is a co-translator of the collection of short stories titled *The Stars, The Earth, The River* (1997), as well as several other short stories in the anthologies *The Other Side of Heaven* (1995), *Vietnam: A Traveler's Literary Companion* (1996), *Night, Again* (1996), *Virtual Lotus: Modern Fiction of Southeast Asia* (2002), and *Crossing the River* (2003).

Faculty web site: <http://sseas.berkeley.edu/people/faculty/bac-hoai-tran>

Vision Science 84, Section I

Comparative Eye Design: Are All Eyes Designed the Same and if Not, Why Not? (1 unit, P/NP)

Professor Christine Wildsoet

Thursday 4:00-6:00, 394 Minor Hall, CCN: 66409

This seminar will meet approximately every other week and will begin the first week of the semester.

The eyes have it in terms of diversity of design. There are lessons to be learned from comparing eye designs across the animal kingdom. This seminar will review and compare the structure of various components of the eye and its motor and neural accessories, by way of understanding the diversity of eye designs, as well as their strengths and limitations from a functional perspective. Examples where such

analyses have spawned new bioengineering lines of research will be given. The course includes hands-on activities and an excursion. **This seminar is designed for students interested in eyes and/or vision and curious about biological design and evolution, with possible career goals of vision research or eye-related health professions.**

Professor Wildsoet is on the faculty of the School of Optometry, where she is involved in both clinical and pharmacology teaching. She is also a member of the Vision Science group. Her research is multidisciplinary as is her research group, which includes basic scientists, clinicians and bioengineers. The focus of research in her lab is myopia (nearsightedness), specifically the mechanisms underlying the development of myopia and its clinical management. The overriding goal of this research is the development of treatments for myopia. Under optimal conditions, young eyes adjust their eye growth to correct neonatal focusing errors. Understanding how this growth regulatory process is derailed in myopia can provide the keys to new treatments. Over the course of her research career, Professor Wildsoet has had the opportunity to work with a range of animals and birds to address other questions related to eye design.

Faculty web site: http://wildsoetlab.berkeley.edu/index.php?title=Wildsoet_Lab

Vision Science 84, Section 2
Current Topics in US Healthcare (1 unit, P/NP)
Professor Kenneth Polse
Tuesday 11:00-1:00, 491 Minor Hall, CCN: 66412

This seminar will meet for seven weeks on the following dates: September 22 and 29; and October 6, 13, 20, and 27; and November 3, 2015.

Problems associated with affordability and accessibility of health care in the US began to escalate in the late 1980s. Over the past twenty-five years both Republican and Democratic administrations have attempted to address these problems, but without success. In 2008, President Obama was elected on a mandate to change the health care system in a way that would provide affordable and accessible care to all Americans. After debate, controversy and compromise, on March 23, 2010, President Obama signed the Patient Protection and Affordable Health Care Act of 2010 (ACA). This was the most significant health care legislation passed since the Medicare Act of 1964. Even though ACA is law and its constitutionality has been upheld by the US Supreme Court, the path to accessible, affordable, and high quality health care has a long way to go. This seminar examines some of the major hurdles/controversies in US healthcare delivery. We will explore health care in other developed countries as well as the US in order to understand both what is wrong with our current system and possible solutions. Typically, the class will review a news story, media presentation, or editorial that will serve as the beginning for class discussion/debate. Some of the topics will include single payer vs. third-party medical coverage; factors driving the cost of medical care; strategies to control medical costs; the role of insurance companies, pharmacological and device manufacturers, health care delivery in other developed countries; and other topics related to health care delivery. **Students interested in pursuing a career in health care delivery (e.g, physician, nurse, etc.), health care planning/administration, or simply just interested in the impact of current health care on society would find most of the topics covered of interest.**

From 1972-2003 Professor Polse served as faculty member, Clinic Director, and Associate Dean in the School of Optometry, University of California, Berkeley (UCB). Recently retired, Dr. Polse is currently Professor of Graduate Studies at UCB. His research developed from years of clinical experience, convincing him that it is the clinician's astute observations that often drive the research agenda. He also believes that discovery and clinical implementation require close collaborative efforts between basic and clinical scientists, a principle that has guided his research career. Some of Professor Polse's professional services and honors include President, International Society for Contact Lens Research; memberships on the AOA Council on Research and the National Advisory Eye Council (NIH); a Senior Fulbright Fellowship; AAO Garland Clay Award; AAO Max Shapero Lecture; BCLA Principal Keynote Speaker;

UCB Sarver Endowed Chair; and Montague Ruben Medal. Since 1974, Professor Polse has had many students, residents, and post-doctoral fellows participate in his laboratory. He has received continuous research support from NIH and Industry for thirty years, resulting in many successful studies (including two NIH-sponsored randomized clinical trials) and over 140 papers published in peer-reviewed journals.

Faculty web site: <http://optometry.berkeley.edu/research/overview-bcsdp>

Vision Science 84, Section 3
Introduction to Vision Science (1 unit, P/NP)
Professor Susana Chung
Tuesday 4:00-6:00, 394 Minor Hall, CCN: 66415

Will meet the first 8 weeks of the semester.

This is an introductory course on visual impairment. When a person's vision cannot be corrected to the standard 20/20 with glasses or contact lenses due to disorders of the eye, he or she may be functionally limited by the reduced vision. This is referred to as "visual impairment." In this course, we will discuss various causes that can lead to a visual impairment, what are the difficulties facing people with visual impairment, and what can be done to help these people lead a successful life.

Dr. Susana Chung is a Professor of Optometry and Vision Science. She teaches courses on visual perception to graduate students in the Optometry Program and the Vision Science Graduate Program.

Faculty web site: <http://optometry.berkeley.edu/faculty/susana-chung-od-phd-faa0>