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 https://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

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 https://lsdiscovery.berkeley.edu.

This document was last updated on March 20, 2020.
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 1:00-2:00, 190 Barrows Hall, Class number: 24094

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

Bioengineering 24, Section 1
A History of Biology in Science Fiction (1 unit, P/NP)
Professor Terry Johnson
Wednesday 4:00-5:00, 179 Stanley Hall, Class number: 28712
The science fiction of a particular period often reflects the cultural struggles and anxieties of that time, while drawing inspiration from contemporary scientific discovery. In this course, we will examine fiction (primarily English-language short stories, novels, radio plays, television, and film). We'll consider the actual biological science behind them (as it was understood at the time that the text was written), the ways in which authors apply and extrapolate science in their narratives, and to what ends. We'll also discuss a few trends in science fiction, and how these trends have changed over time, and explore why. **This seminar is part of the Food for Thought Seminar Series.**

Terry D. Johnson has a master's degree in chemical engineering from MIT and is currently an Associate Teaching Professor of bioengineering at UC Berkeley. He hopes that by doing so, he will be giving students the tools that they will need to repair him as he gets older.

He teaches courses in a wide range of subjects, displaying a versatility that has prevented him from achieving any actual expertise. In 2010 he received the Golden Apple Award for Outstanding Teaching, and was one of the recipients of Berkeley's 2013 Distinguished Teaching Awards. He is also co-author of the popular science book How to Defeat Your Own Clone (and other tips for surviving the biotech revolution) and is represented by the Linda Chester Literary Agency.

When he is not generating PowerPoint slides, he can be found giving talks and panels at events like The Bad Ad Hoc Hypothesis Festival, Nerd Nite, Eureka! Science Comedy, Wondercon, and Silicon Valley Comic-con. He is available as a Science and Entertainment Exchange creative consultant, and is someone who will probably say yes if you'd like him to talk to people about science and engineering.

Faculty web site: www.terrydjohnson.com/

**Civil and Environmental Engineering 24, Section 1**  
Waves: Ideal, Real, and In-Between (1 unit, P/NP)  
**Professor Evan Variano**  
**Wednesday 12:00-1:00, 544 Davis Hall, Class number: 28087**

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 1**  
Apuleius' The Golden Ass (1 unit, P/NP)  
**Professor Dylan Sailor**
Monday 3:00-4:00, 211 Dwinelle Hall, Class number: 26249

In this seminar, we will read and discuss a landmark of world literature, the ancient Roman novel by Apuleius entitled The Golden Ass. In the novel, we follow the journey of the protagonist and narrator, Lucius, first as he seeks to learn about magic and then, after a magical transformation gone awry, as he navigates the Roman world as a human mind trapped in a donkey’s body. The story is brilliantly told, occasionally disturbing, sometimes crude and sometimes elevated, and always entertaining and thought-provoking. In our reading, we will have the opportunity both to learn about the world depicted within the novel, so different from our own, and to discuss the book’s preoccupations, for example, magic, curiosity, desire, sex, allegory, violence, religion, animals, fiction, philosophy, and what makes a good life. Above all, we will consider the novel as a meditation on how and why people tell, and read, stories. There will be no written assignments in this course; the only requirements are that you 1). complete the weekly readings, 2). think about them, and 3). on the basis of your reading and thinking, contribute actively and constructively to our in-class discussions. **No Latin required: we will read an English translation of the novel.**

Professor Sailor studies the literatures and languages of ancient Greece and Rome, with a special emphasis on how the Romans wrote and thought about their past. He grew up near Seattle but has lived in California for many years; he has been a professor in the Department of Classics here at Berkeley since 2005.

Faculty web site: http://www.classics.berkeley.edu/people/dylan-sailor

__Classics 24, Section 2__

**Monsters of the Ancient World (1 unit, LG)**

**Professor Trevor Murphy**

**Friday 1:00-2:00, 225 Dwinelle Hall, Class number: 30985**

This seminar will examine monsters in ancient Greek and Roman culture in their roles as guardians of treasure, portents, ancestors, markers of the edges of the world, and messengers from the gods or from one’s inner self. Texts from the ancient Near East, the Bible, and the Middle Ages will be read as comparative evidence, as well as some theoretical interpretations of monsters. Requirements: There will be 30-35 pages of reading per week. Each week, two students will be responsible for introducing one of the readings for that class with a short (ten-minute) collaborative oral presentation.

Trevor M. Murphy is a Professor of Classics. His special interests include Roman prose authors and ethnography.

Faculty web site: http://classics.berkeley.edu/people/faculty/person_detail.php?person=32

__Comparative Literature 24, Section 1__

**Read a Classic: Cervantes' Don Quixote (1 unit, P/NP)**

**Professor Timothy Hampton**

**Tuesday 11:00-12:00, 4125A Dwinelle Hall, Class number: 32898**

Cervantes' "Don Quixote" (1605-1615) is the first great European novel and the most influential novel ever written. It is also one of the funniest and most moving. In this seminar we will read and discuss as much of it as we can. The instructor will provide context and historical background and will guide conversation among members of the group. Students will each be expected to give a brief oral presentation. The course offers students the opportunity to become experts in one of the foundational texts of world literature and to grapple with a literary guide for a moral life in an immoral world.

Timothy Hampton is Professor of Comparative Literature and French, and Director of the Doreen B. Townsend Humanities Center at Berkeley. A first-generation college grad he is a past winner of the
Computer Science 24, Section 1
Boeing 737 MAX: Money, Machines, and Morals in Conflict (1 unit, P/NP)
Professor Brian Barsky
Friday 11:00-1:00, 405 Soda Hall, Class number: 28558

The class will not meet every week. Professor Barsky will work out exact arrangements directly with the students.

The Boeing 737 MAX aircraft has been grounded worldwide after two fatal crashes with similar characteristics within five months of each other. In both incidents, pilots could not control the aircraft shortly after takeoff resulting in tragic crashes with no survivors. Due to concerns about financial losses, there is pressure to resume the use of the 737 MAX for commercial passenger flight as soon as possible notwithstanding continued safety concerns. Examination of the many factors that led to these disastrous consequences illuminates disquieting ethical issues of corporate behavior and lack of government oversight. There is a complex web of concerns involved. At the heart is a computer software that controls the aircraft (Maneuvering Characteristics Augmentation System, or MACS) which was a key element in the crashes. This seminar will require students to research and present some of the issues involved in this timely matter. Possible topics to be discussed include physics of flight, aeronautics, avionics, aircraft design, engineering ethics and the social responsibility of engineers, corporate interest and business ethics, the role of responsible government, issues of increased reliance on complex software replacing humans, etc. **Students from all academic disciplines are welcome and encouraged to enroll.** 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” state “faculty may decline to enroll students in a class who cannot be present at all scheduled activities.” Food for Thought dining details will be discussed in class. Enrollment is by instructor approval. Students interested in enrolling should email the professor at <barsky@berkeley.edu>.

This seminar is part of the Food for Thought Seminar Series.

Brian A. Barsky is Professor of the Graduate School. He is a Warren and Marjorie Minner Faculty Fellow in Engineering Ethics and Professional/ Social Responsibility. Prof. Barsky has faculty affiliations in Electrical Engineering and Computer Sciences (EECS), Optometry, Vision Science, Bioengineering, the Berkeley Institute of Design (BID), the Berkeley Center for New Media (BCNM), the Arts Research Center (ARC), and the Berkeley Canadian Studies Program. He received his Ph.D. from the University of Utah in Computer Science. 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, vision correcting displays, and virtual environments for surgical simulation.

Faculty web site: http://people.eecs.berkeley.edu/~barsky

English 24, Section 1
Modernist Cinema: Bergman, Pasolini, Godard (1 unit, P/NP)
Professor D.A. Miller
Wednesday 3:00-5:00, 305 Wheeler Hall, Class number: 32743

Class will meet for the first seven weeks of the semester, from August 26 through

We will watch and discuss three masterworks of European Modernist Cinema: Ingmar Bergman’s Persona, Pier-Paolo Pasolini’s Teorema, and Jean-Luc Godard’s Contempt. Though high-water marks of the 1960s European art film, these films are not just famous or important; they remain greatly compelling works of art. But for a couple of reasons, they are unrepentently difficult to watch. For one thing, each advances an unfamiliar thesis about very familiar things (love, sex, the couple), so we need to think harder than usual about what these films are saying. And for another thing, each elaborates its thesis in an innovative cinematic form that even now hasn’t been assimilated by mainstream cinema. We also, then, need to look harder than usual at what we are seeing. To engage these films, you may have to give up your ordinary expectation of cinematic pleasure, but in doing so, the instructor predicts, you are pretty sure to find pleasure of another kind.

D.A. Miller is the author of several books on film including Hidden Hitchcock, 8, and the forthcoming “Second Time Around: The New Cinematheque” in which he reflects on rewatching the art films of his youth on DVD. For many years he was John F. Hotchkis Professor in English at Berkeley, and most recently served as Visiting Professor at the University of Tokyo, Japan.

Faculty web site: http://english.berkeley.edu/profiles/55

English 24, Section 2
Reading Walden Carefully (1 unit, P/NP)
Professor Mitchell Breitwieser
Wednesday 4:00-5:00, 204 Dwinelle Hall, Class number: 32771

We will read Thoreau’s Walden in small chunks, probably about thirty pages per week. This will allow us time to dwell upon the complexities of a book that is much more mysterious than those who have read the book casually, or those who have only heard about it, realize. We will also try to work some with online versions of the book, using the wordsearch command to identify words such as “woodchuck” or “dimple” that reappear frequently, in order to speculate on patterns Thoreau is trying to establish. Regular attendance and participation, along with a loose five-page essay at the end, are required.

Mitchell Breitwieser teaches American literature in the Berkeley English department.

Faculty web site: http://english.berkeley.edu/profiles/19

English 24, Section 3
Emily Dickinson (1 unit, P/NP)
Professor Bryan Wagner
Thursday 2:00-3:00, 225 Dwinelle Hall, Class number: 32774

We will be reading and discussing extraordinary poems by Emily Dickinson.

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, 237 Cory Hall, Class number: 26876

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; fracking; global warming and geoengineering; and many more topics to be selected by the students. This seminar is part of the Food for Thought Seminar Series.

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: https://english.berkeley.edu/profiles/74

Environmental Science, Policy, and Management 24, Section 3
Introduction to Diversified Farming Systems (1 unit, LG)
Professor Kathryn De Master
10/23-10/24/2020, 10/23: meet in 132 Mulford Hall. The meeting place for 10/24 will be discussed at that time., Class number: 26878

On 10/23 we will meet from 12:00-5:00 p.m. On 24/2020 we will go on a field trip to area farms from 7:00 a.m. to 6:00 p.m.

This course offers an introduction to the theory and practice of diversified agro-ecological farming systems. Our seminar will combine in-class instruction with field trips to area farms, to learn from farmers and view diversified farming systems practices in action. This course is open to any freshman students interested in exploring the theory and practice underpinning diversified agro-ecological farming systems. Any student may attend, and the course is not limited to students with specific training in either the natural or social sciences. The class will be graded but will be accessible to all Berkeley student participants. Freshmen students who are interested in learning more about food and farming systems, at an introductory level.

Kathryn De Master is an Assistant Professor of Agriculture, Society and Environment in the Department of Environmental Science, Policy, and Management. She is a rural sociologist of agriculture whose work focuses on the changing structures in agriculture in the US and internationally. Her research interests include farmland access and financialization, the “agriculture of the middle,” diversified farming systems, participatory mapping, and the influence of corporations in agri-food systems. An avid advocate for community-driven rural conservation and development and diversified agro-ecological farming systems, De Master is an affiliated scholar with the Berkeley Food Institute and has facilitated numerous community-based participatory agri-food initiatives.
Geography 24, Section 2
Flood, Drought, Fire: Understanding California's Weather Extremes
(1 unit, P/NP)
Professor Nathan Sayre
Thursday 12:00-1:00, 575 McCone Hall, Class number: 26010

This Freshman Seminar explores the floods, droughts and wildfires that result from California's highly variable climate. We will look briefly at the biophysical and meteorological factors that drive this variability, and then we will consider paleo-ecological evidence of extreme events in the deep past. Most of our attention will be focused on the historical period (since European contact) and the present day, however. How did Native Americans understand California's weather and manage their lands in relation to it? How did Euro-American ideas and practices differ from indigenous ones? How have settlers altered California's land- and water-scapes to contend with weather extremes, and how have these interventions affected the patterns and impacts of extreme events today? Why have wildfires gotten so much larger and more intense in recent years, for example? Finally, what steps can be taken to address the challenges California faces in managing water, vegetation and fire? Throughout the semester, we will also follow the current news regarding floods, droughts and wildfires in California and beyond. I hope the seminar will attract students who are interested in the environment from a wide range of disciplinary perspectives, including history, anthropology, ecology, climatology, literature and policy. (That is, I hope to find future Geographers!) The likelihood of yet another severe wildfire season this fall will allow us to apply the course material to current events and to ask questions about what defines "climate" and what counts as "extreme weather" in a time of anthropogenic climate change. I also hope to inspire at least some students to undertake research projects related to these topics, as I myself am doing now.

Nathan Sayre is an environmental and historical geographer who specializes in rangelands, especially in the western United States. He majored in Philosophy and earned his PhD in Social Anthropology. His research on conflicts between ranchers and the federal government in southern Arizona led him to study the history and ecology of semi-arid grasslands, including the history of ecological ideas about how climates, soils and vegetation interact. Professor Sayre teaches classes on Global Warming (with his colleague John Chiang) and on Food and the Environment. He has written extensively on the history of ideas about scale, carrying capacity, and anthropogenic impacts on the environment, as well the history of rangeland science. He is currently working on a study of the California mega-flood of 1861-62 and the three-year drought that followed it.

Faculty web site: https://geography.berkeley.edu/nathan-sayre

Global Studies 24, Section 1
Diversity, Identity, and Social Justice: America in Global Perspective (1 unit, P/NP)
Lecturer Darren Zook
Tuesday 2:00-3:00, 225 Dwinelle Hall, Class number: 24414

Diversity is perhaps the most important social issue in America. As a concept, diversity includes and relates to a number of other issues, such as racism, discrimination, social justice, immigration, marginality, integration, and so forth. Many a program has been put in place to address and resolve these issues, in the hope that, over time, America would come together and make all of its differences work collectively as one harmonious and integrated society. For some people, this is already happening. For others, America seems more divided now than ever, and diversity has failed to deliver on its promise.
This seminar will delve into the complexities of this thing we call diversity, to explore the rhetoric and the reality of diversity as it currently exists in America. We will do this by reading accounts of diversity as it happens—not just in the news but also in a variety of different media—and then learning how to discuss critically the central issues of diversity. The goal is not just to talk about diversity, but also to learn how to talk about diversity in ways that are both critical and constructive. Diversity is an extraordinarily sensitive issue, and too many people simple avoid the conversation to avoid the discomfort that might ensue.

Darren Zook has been a member of the faculty at the University of California, Berkeley, since 2000. He teaches in International and Area Studies and in Political Science. He has taught previously at the University of California, Davis, and at the Claremont Colleges in southern California. In 2012, he was a Fulbright Research Scholar in Singapore working on a project that focused on cybersecurity in the Asia-Pacific region.

During his time at the University of California, Berkeley, Darren Zook has taught and published on a wide variety of topics, including the politics of the Asia-Pacific region, human rights and international law, terrorism and security studies, multiculturalism and diversity, and economic policy with a focus on anti-corruption programs. His research interests have continuously grown into an unusually broad portfolio of international and comparative projects, and his work has taken him to various parts of Asia, the Pacific Islands, and northern Europe.

Zook has recently published a four-book series, entitled Ourselves Among Others: The Extravagant Failure of Diversity in America and An Epic Plan to Make It Work, which is an engaged critique of current diversity policy and practice in the United States and elsewhere in the world.

**Global Studies 24, Section 2**  
**Diverse Economies and the Global South in the NY Times (1 unit, P/NP)**  
**Lecturer Clare Talwalker**  
**Wednesday 1:00-2:00, 321 Haviland Hall, Class number: 25519**

This Global Studies Freshman Seminar will explore diverse ways of thinking about the economy, with a focus on Global South coverage in the New York Times and drawing on the writings of feminist economic geographers J. J. Gibson-Graham. Students will work in pairs to facilitate one class meeting per pair in the semester, working closely with the instructor to design that class.

Clare Talwalker is a continuing lecturer in International and Area Studies and core faculty of the Global Poverty and Practice Minor. She is a cultural anthropologist by training, and has worked on India (postcoloniality, the public sphere, caste). She is interested in the history of political economy, in how climate change matters for how we imagine future economies, and in the scholarship and practice of abolishing poverty.

**Global Studies 24, Section 3**  
**Contemplating the Past, Present and Future of Humankind (1 unit, P/NP)**  
**Lecturer Crystal Chang Cohen**  
**Thursday 10:00-11:00, 211 Dwinelle Hall, Class number: 25697**

In this seminar, students will discuss and debate the forces that have shaped human evolution. Dr. Chang Cohen will use the interdisciplinary approach of Yuval Harari’s 2014 book, Sapiens: A Brief History of Humankind, to explore questions such as these: How and why have Homo sapiens come to dominate all species on Earth? Are Homo sapiens on the verge of creating a new human species with new genetic technologies? If so, who might benefit from genetic enhancements and who will be left behind? What are the consequences for life as we know it?
Dr. Crystal Chang Cohen received her Ph.D. from UC Berkeley, her M.A. from UC San Diego, and her B.A. from Stanford University. She teaches a variety of courses on China and India, development, and political economy. Her current research focuses on Chinese industrial policy in both the automotive and information technology sectors. Her research has recently turned toward understanding how technology is not only changing the way humans interact with one another, but also the way people think, reproduce, and perceive the world around them.

Global Studies 24, Section 4
Best Movies of All Time (1 unit, P/NP)
Lecturer Peter Bartu
Thursday 5:00-6:00, 211 Dwinelle Hall, Class number: 26252

Consider yourself a budding movie critic? Have an opinion on everything? Or just looking to hang out and converse about the greatest movies of all time? Look no further. We will of course consider Casablanca, the Battle of Algiers, the first Max Max movie (and the last), Bladerunner (duh, the first one), Point Break, both of them, Superbad, and Wild Tales (from the bad heart of Argentina), the Departed, Heat, and anything with Javier Bardem and Penelope Cruz in it (No Country for Old Men, Counsellor, Vicky Christina Barcelona). Disagree with the selection? Come and make a case for your top ten movies, no genre left unexplored. One movie each week.

Dr. Peter Bartu teaches courses at the University of California, Berkeley on Political Transitions in the Middle East, the Gulf States, and International Organizations & Global Governance. He has worked with the United Nations in a variety of roles throughout the Middle East including as a member of the UN’s stand-by mediation team in Benghazi and Tripoli during the Libyan revolution. In 2008-2009 he led a United Nations team that produced a seminal report on the disputed internal boundaries between the Arabs and the Kurds in Iraq including Kirkuk. He has worked as a foreign policy advisor in the Australian Prime Minister’s Department and the Sydney Organizing Committee of the Olympic Games and in his spare time enjoys open water swimming at the Dolphin Club in San Francisco.

History 24, Section 1
Women in the Modern Black Freedom Struggle (1 unit, P/NP)
Professor Waldo Martin
Wednesday 2:00-4:00, 3104 Dwinelle Hall, Class number: 32836

The class will be held on Wednesdays from August 26 through October 7, 2020.

This seminar will examine the history of women in the Modern African American Freedom Struggle. Particular attention will be given to the Civil Rights (1940-1966) and Black Power (1966-1980) eras. Our core readings and discussions will focus on the centrality of a wide range of African American women to that profoundly influential freedom struggle. We will also focus on the historical development, patterns, meanings, and consequences of the pivotal roles African American women played in that struggle.

articles and lectured widely on a variety of topics in modern African American history and culture. His current book project is A Change is Gonna Come, a cultural analysis of the modern African American Freedom Struggle.

**History of Art 24, Section 2**

*Mary Lovelace O'Neal and Joan Brown, women painters at UC Berkeley*

(1 unit, P/NP)

**Professor Darcy Grimaldo Grigsby**

*Wednesday 10:00-12:00, 308B Doe Library, Class number: 33000*

Class will meet on Wednesdays for the first 7 weeks of the semester, beginning August 26, 2020.

In collaboration with the 150 Years of Women at U.C. Berkeley, this seminar will focus on two wonderful painters with the goal of compiling bibliographies and essays on each. Mary Lovelace O'Neal is an African American artist whose reputation is deservedly growing. Joan Brown was a well-known Bay Area figurative painter. I myself was a student in one of her painting classes. Students do not need prior art history training.

Darcy Grimaldo Grigsby is a specialist in 19th and 20th c French and American art. She is the author of four books: Extremities. Painting Empire in Post-Revolutionary France; Colossal. Engineering the Suez Canal, Statue of Liberty, Eiffel Tower, and Panamá Canal; Enduring Truths. Sojourner’s Shadows and Substance; and Creole. Portraits of France’s Foreign Relations (1794-1874).

**Integrative Biology 24, Section 1**

*Biological Impacts of Climate Change (1 unit, P/NP)*

**Professor Caroline Williams**

*Tuesday 2:00-3:00, 5192 Valley Life Sciences Building, Class number: 22050*

The pace of current climate change is orders of magnitude faster than any changes experienced in the Earth’s past. This is reconfiguring biological diversity in ways that we are only beginning to recognize. Organisms are shifting their distributions in time and space, and experiencing population fluctuations and extinctions. In this seminar we will explore the biological impacts of climate change on plants, animals (including humans), communities, and ecosystems. **This seminar is for anyone who cares about the planet and wants to understand climate change research and become a more effective advocate for understanding climate change. You must be prepared to fully engage with the course, contribute actively to discussions, and do all the readings.**

Caroline Williams is an Assistant Professor in Integrative Biology. She is an evolutionary physiologist who studies the evolution of metabolism in response to environment perturbations. One of her research foci is the responses of insects to winter climate change.

Faculty web site: http://cmwilliamslab.com

**Integrative Biology 24, Section 2**

*How and Why Do Birds Sing (1 unit, P/NP)*

**Professor George Bentley**

*Tuesday 11:00-12:00, 4110 Valley Life Sciences Building, Class number: 24706*

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 3
Ethnobiology, Nutrition, and Global Food Systems (1 unit, P/NP)
Professor Thomas Carlson
Tuesday 10:00-11:00, 4110 Valley Life Sciences Building, Class number: 22051

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 and animal species. We will also compare the nutritional qualities, health effects, and carbon footprint of conventional industrial food, organic food, locally grown food, and food that is hunted or gathered. In this seminar we will read Michael Pollan’s Omnivore’s Dilemma and view the documentary film Food Inc. Any interested Freshmen are welcome.

Thomas Carlson is a physician and ethnobotanist who is on the faculty of the Department of Integrative Biology and is Curator of Ethnobotany in the University and Jepson Herbarium at the University of California, Berkeley. He has conducted food plant and medicinal plant research with, and provided medical care for, over forty different ethno-linguistic groups in fifteen different countries in South America, Central America, North America, Africa, Asia, and Pacific Islands. Tom’s multidisciplinary work with diverse institutions, biocultural environments, and communities has helped illuminate how local indigenous ethnobotanical systems contribute to human health and ecosystem health.

Faculty web site: http://ib.berkeley.edu/people/faculty/carlson

Integrative Biology 24, Section 7
Reimagining Biology in Light of the Microbiome (1 unit, LG)
Professor Britt Koskella
Wednesday 4:00-5:00, 5192 Valley Life Sciences Building, Class number: 32726
We are at an exciting moment in the biological sciences. Every field, from ecology and evolution to molecular biology to medicine, is being reexamined in light of new evidence that the microbiome (the vast array of microbes inhabiting humans and other species) influences how the host develops, what the host eats and metabolizes, how the host acts, and the host’s general health. In short, every aspect of biology is fair game for reconsideration through the lens of the microbiome; and this is especially true of the human microbiome given its direct relevance to medicine and human health.

In this course will examine the new, most exciting data on how the microbiome shapes its host phenotype. We will take a broad view of this idea, covering many systems (including humans, other vertebrates, invertebrates, and plants) and many different microbiome-mediated traits (including disease, behavior, growth, and species interactions). By reading both popular science articles and the primary literature, we will work together to identify the big questions that still need to be addressed and discuss how a research team could test these questions. Who knows, perhaps we will come up with the next great microbiome experiment!

Britt Koskella is an assistant professor in Integrative Biology, whose work focuses on interactions between bacteria and the viruses that infect them (bacteriophages). She seeks to understand how coevolution between bacteria and phage might influence the health of eukaryotic hosts, such as agriculturally important plant species. She is passionate about her research and strongly believes that a good understanding of evolution and ecology is critical to progress in the medical sciences. Koskella also strongly believes that scientific progress can be made only by embracing diverse viewpoints, backgrounds, and training.

Faculty web site: http://brittkoskella.wordpress.com/

**Letters and Science 24, Section 1**  
**Twelve Beautiful Things (1 unit, P/NP)**  
**Professor Josh Hug**  
**Monday 2:00-3:00, 47 Evans Hall, Class number: 32902**

Each week we will carefully consider and discuss exactly one beautiful thing. Beautiful things will be drawn from the arts, nature, science, mathematics, and perhaps more. For example, one week we might read and discuss the story "Tlon, Uqbar, Orbus Tertius" by Jorge Luis Borges. In another we might listen to and discuss Melt Banana’s noise album "Cell-Scape." In another week we might go on a particularly spectacular hike in Oakland. Topic choices will be guided by student interest. The course is open to all interested students from any backgrounds, though some students may get more out of it than others.

This course was designed for students with adventurous tastes and zealousness towards aesthetic concerns. Very strong fluency with English is recommended, though not required.

Josh Hug grew up in Texas. It was hot, flat, and there were many terrible insects. In 2004, he came to Berkeley as a PhD student to reverse engineer systems used by bacteria for signal processing and decision making. After graduating in 2011, he moved to New York City to teach at Princeton, and came back to Berkeley in 2014. Prior to his time in Texas he was a dispersion of random molecules, unassembled into any greater being.

Faculty web site: http://joshh.ug/

**Linguistics 24, Section 1**  
**Language Myths (1 unit, P/NP)**  
**Professor Larry Hyman**
**Wednesday 12:00-1:00, 121 Latimer Hall, Class number: 24985**

Everyone has preconceptions about language in general and languages in particular. But are these accurate? The purpose of this course is to discuss a number of widespread “language myths”: misleading, misplaced, or just plain false ideas that the general public has about the nature of language or about specific languages such as standard and non-standard English, French, unwritten languages etc. In our weekly meetings we will discuss and evaluate a number of such common language myths, for example: 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 which 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, and has recently served as President of the Linguistic Society of America. 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 1**  
*Using Random Walks in the Physical and Social Sciences (1 unit, P/NP)*  
Professor F. Alberto Grunbaum  
**Thursday 10:00-12:00, 939 Evans Hall, Class number: 22256**

The class will be held on Thursdays for seven (7) weeks, starting August 27, 2020.

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 1**  
*Art and Science on Wheels (1 unit, P/NP)*  
Professor Benson Tongue  
**Tuesday 10:00-11:00, 104 Dwinelle Hall, Class number: 33108**

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. **Upright bipeds with bilateral symmetry preferred. Hopefully mammalian.**
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/

**Molecular and Cell Biology 90A, Section 1**  
Toni Morrison: "Beloved" and "The Bluest Eye" (1 unit, P/NP)  
Professor Richard Calendar  
**Tuesday 2:00-3:00, 430 Barker Hall, Class number: 32916**

Two novels will be discussed, both by Toni Morrison. "Beloved" is about a slave mother who kills her child, because the future of the child is so bleak. There is a movie based on this book that we should be able to see. "The Bluest Eye" is about a young African American girl who is concerned about her beauty, because her eyes are not blue. We could study another Morrison novel instead of "The Bluest Eye" depending upon what the students want. Books will be provided.

**Any interested freshman should be able to participate.**

Professor Richard Calendar earned a Ph. D. in Biochemistry from Stanford University and was a postdoctoral fellow in Microbial Genetics at the Karolinska Institute in Stockholm, Sweden. His field of research is bacterial viruses. He is a member of the American Academy of Microbiology.

Faculty web site: https://mcb.berkeley.edu/faculty/bbs/calendarr.html

**Molecular and Cell Biology 90A, Section 2**  
Evolution: Creatures, Not Creation (1 unit, LG)  
Professor Jeremy Thorner  
**Friday 12:00-1:00, 430 Barker Hall, Class number: 19249**

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 90D, Section 1
Zoonotic Viruses including COVID-19 (1 unit, P/NP)
Senior Lecturer P. Robert Beatty
Thursday 11:00-12:00, 100 Wheeler Hall, Class number: 24039

This seminar will focus on viruses that originate in animal populations but can make the transition to cause disease in humans. We will focus on the recent COVID-19 virus and SAR but also discuss Ebola and other viruses that have caused human infections. The course will begin with lectures by the instructor to introduce virology and immunology. The remainder of the course will be group work and student-led discussions of specific scientific papers about these important viral pathogens. **This seminar is part of the Food for Thought Seminar Series.**

Professor Beatty is an infectious disease immunologist who has worked on Chlamydia, Epstein-Barr virus, Leishmania, and dengue virus over the last 25 years. His research is focused on dengue virus immunology especially testing drugs and vaccines to protect against severe disease. He teaches immunology classes at Cal in the Department of Molecular and Cell Biology.

Molecular and Cell Biology 90D, Section 2
Revolutions in Biology (1 unit, P/NP)
Thursday 3:00-4:00, LSA 447, Class number: 24109

In this seminar, we will discuss revolutions in biology, with a particular focus on two emerging revolutions that have origins at UC Berkeley: the cancer immunotherapy revolution and the genetic engineering revolution. We will begin with a discussion of Thomas Kuhn’s classic text, The Structure of Scientific Revolutions, and ask: what is a scientific revolution? and, how do they occur? We will then examine specific examples of revolutions in biology from the past and present, and discuss what biological revolutions might be on the horizon. Full disclosure: there is a fair amount of reading required for the class, especially in the first few weeks. Be prepared to read and discuss as much as a (short) book a week for this seminar. Students will be asked to write a short “reaction” paragraph each week in response to the readings, and active class participation is expected. Although this seminar will discuss some science, no particular scientific knowledge is required, and the level of scientific discussion will be accessible to all. Much of the seminar will be dedicated not to science itself, but to the social and philosophical underpinnings of science. Participation from students with a wide range of interests is encouraged. **Although this seminar will discuss some science, no particular scientific knowledge is required, and the level of scientific discussion will be accessible to all. Much of the seminar will be dedicated not to science itself, but to the social and philosophical underpinnings of science. Those not intending to major in science, but who are interested in science, are encouraged to enroll. There is quite a bit of reading, but this is largely frontloaded to the first part of the class, so should not be a problem for students with other difficult classes.**

Molecular and Cell Biology 90E, Section 1
Matter, Mind, Consciousness (1 unit, P/NP)
Professor David E. Presti
Thursday 2:00-3:00, 107 Mulford Hall, Class number: 19250

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 are related to the subjective experience of consciousness. Investigation of this mind-body connection is among the most profound challenges in all of science, impacting everything about who we believe we are and how we relate to the rest of what we call reality. While biophysical science has made great progress in understanding the structure and function of brains and bodies, the nature of consciousness remains in many ways as deeply mysterious today as it was centuries ago. I argue that revolutionary ideas will be required in order to bring a science of consciousness to a place of deeper insight. We will address this issue from the perspectives of biology, philosophy, physics, psychology, and sociology -- cognitive science, broadly defined. Students interested in all areas of the arts, humanities, and sciences are encouraged to enroll. **Students interested in all areas of the arts, humanities, and sciences are encouraged to enroll. This seminar is part of the Food for Thought Seminar Series.**

David Presti has taught neuroscience at UC Berkeley for thirty years. For the past seventeen years, he has also been teaching neuroscience to Tibetan monks and nuns in India, Bhutan, and Nepal. He is author of Foundational Concepts in Neuroscience: A Brain-Mind Odyssey (2016) and of Mind Beyond Brain (2018).

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

---

**Natural Resources 24, Section 1**
**Global Environment Theme House Freshman Seminar (1 unit, P/NP)**
**Professor Kate O’Neill**
**Monday 5:00-6:00, Clark Kerr Campus, Building 1, Class number: 27038**

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 course is also listed as.

Kate O’Neill joined the Department of Environmental Science, Policy and Management at UC Berkeley in 1999, specializing in the field of global environmental politics and governance. She writes on the ever-changing nature of global environmental challenges and our responses to them, on environmental activism and social movements, and on the global political economy of wastes. She teaches upper division and graduate courses in International Environmental Politics, and is a leading faculty advisor in the Conservation and Resource Studies Major in the College of Natural Resources. She holds a Ph.D. in Political Science from Columbia University, and is a co-editor of the journal Global Environmental Politics. She is currently the Resident Faculty member in Unit 2.

---

**Near Eastern Studies 24, Section 1**
**Animals in Ancient Egypt (1 unit, LG)**
**Professor Carol Redmount**
**Wednesday 1:00-2:00, 271 Barrows Hall, Class number: 26254**

**Current as of 3/20/2020. For updates, visit the website at https://fsz.berkeley.edu**

**Freshman & Sophomore Seminars Fall 2020 – Page 18**
The ancient Egyptians had a rich and multifaceted relationship with the natural world around them, especially with animals. Animals, domestic and wild, played symbolic roles in the Egyptian universe as representatives and manifestations of various deities, and practical roles in the lives of ancient Egyptians where they functioned as pets, food, and offerings to the gods. In this one-hour seminar we will look at some of the many different ways the ancient Egyptians related to the animals populating their universe. **Seminar open to freshman students. No background in field required.**

Carol Redmount is an archaeologist who has been excavating in the Middle East, and especially Egypt, for over thirty years. Her fieldwork research has taken place in Egypt, Jordan, Israel, Cyprus, Tunisia and the United States. Over the years she has adopted cats from Israel and Jordan and sponsored a dog and a cat from Egypt for adoption. She has always been fascinated by the ancient Egyptians' complex relationships with the many animals in their world and looks forward to exploring these further in this seminar. She lives in Berkeley with four rescue animals—one small dog and three cats—as well as two parrots.

Faculty web site: http://nes.berkeley.edu/Web_Redmount/Redmount.html

**Nuclear Engineering 24, Section 1**  
**Professional Orientation for Freshman Scientists and Engineers (1 unit, P/NP)**  
**Professor Karl van Bibber**  
**Monday 3:00-4:00, 3119 Etcheverry Hall, Class number: 27976**

What does it mean to be a professional? Why should you think of yourself and act as a professional engineer already from the beginning of your freshman year? This seminar will deal with topics that are very important for you to be familiar with, but are almost never presented in today's fast-paced specialized undergraduate curriculum: professional respect and demeanor, time management and organization of your work, professional ethics and research integrity, intellectual property, effective technical speaking and writing, the federal legislative and budget processes, innovation, etc. This will prepare you to be not only a highly productive professional later on, but a much more successful student right now. This seminar is intended to be useful for all freshmen, primarily but not exclusively engineers. This seminar is part of the Food for Thought Seminar Series.

Karl van Bibber received his BS and PhD from MIT in experimental nuclear physics. After postdoctoral work at LBNL, he served as an Assistant Professor of Physics at Stanford. He joined LLNL where he founded and led the High Energy Physics and Accelerator Technology Group, and was LLNL Project Leader for construction of the SLAC-LBNL-LLNL PEP-II B Factory project. His institutional service includes positions as Chief Scientist for the Physics and Space Technology directorate, and Deputy Director of the Laboratory Science and Technology Office. In 2009 he became Vice President and Dean of Research of the Naval Postgraduate School in Monterey, CA. In 2012 he joined the faculty of UC Berkeley as Professor of Nuclear Engineering, and acceded to Department Chair in July 2012. He currently serves both as the Executive Associate Dean and Associate Dean for Research in the College of Engineering. His research focuses on basic and applied nuclear science, particle astrophysics, and accelerator science and technology. He is the recipient of an Alfred P. Sloan Research Fellowship, the DOE Deputy Secretary Award for the B Factory, and the Navy Superior Civilian Service Award for the establishment of degree and executive education programs in Energy, the first within the DoD. He is a fellow of the APS and AAAS.

Faculty web site: http://www.nuc.berkeley.edu/karl-van-bibber

**Nuclear Engineering 24, Section 2**  
**How It's Made (1 unit, P/NP)**  
**Professor Peter Hosemann**  
**Monday 2:00-3:00, 3119 Etcheverry Hall, Class number: 28788**
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 3*

**Eating Green: The science behind the grassroots food movement (1 unit, P/NP)**

*Professor Amy Joy*

**Thursday 3:00-4:00, 39 Evans Hall, Class number: 27366**

Nutrition has become a hot-bed of controversy. Every day we are bombarded with new and seemingly unsubstantiated claims about a nutrient or dietary supplement with miraculous results that appear too good to be true. Other claims of products that boost our immune system or decrease our risk of heart disease may have little or no clinical significance. We hear concerns about the impact of agricultural methods on our environment as well as frightening reports on devastating illnesses associated with contaminated foods purchased in supermarkets or restaurants. How can we determine if these claims and others are credible? The goal of this freshman class is to analyze, discuss, and critically appraise the scientific basis for many controversial health and nutrition-related questions. What constitutes a healthy diet? What does eating healthy really mean? Are organic foods better for the environment? Am I eating enough fiber? Is sugar addictive? How much alcohol reduces my risk of cardiovascular disease? Can probiotics prevent irritable bowel syndrome (IBS)? How can I avoid food borne illness? These, as well as other current nutrition controversies, will be studied. Students will also examine their own diet using a simplified food journal.

Amy Block Joy, Emeritus was educated at UC Berkeley (PhD, Nutritional Sciences; BA, Biochemistry/Bacteriology) and has worked at the University of California for 33 years (UCB: 1980 - 1988; UCOP: 1988-1994; and UC Davis: 1994-2013). She directed a poverty program receiving over $150 million in grants to improve the health and well-being of low-income Californians. She has authored dozens of scholarly peer-reviewed journal articles and hundreds of government reports on the study of health disparities among vulnerable populations. She also teaches an upper division 198 class on ethics. She is currently the President for the UC Berkeley Emeriti Association.

*Plant and Microbial Biology 24, Section 1*

**Introduction to the Plant Sciences at Berkeley (1 unit, P/NP)**

*Professor Lewis Feldman*

**Tuesday 11:00-12:00, 189 Dwinelle Hall, Class number: 27138**

This seminar is meant to provide students the opportunity to explore ways plants have touched or influenced their lives, both personally and in an historical sense. Examples could include unique cultural uses of plants, perhaps as foods or medicines, or in a ceremonial way. As well, you could also use this seminar to explore an aspect of plants in which you may have an interest and about which you would like to learn more, such as the ways plants figure into art (e.g., Rousseau’s Jungle paintings). Plants too have recently been associated with controversial issues, such as genetically engineered foods and with so-called crop circles. We want to use this seminar as a way of expanding our appreciation and understanding of
this unique group of organisms. For the first few meetings we will have talks/discussions from individuals whose daily lives involve plants. For the remaining weeks each student will present a 10-to-15-minute “seminar” on a plant topic in which they have an interest. This talk should be based on readings and could also involve some personal, firsthand experiences with plants. Additionally, you will prepare a short paper based on readings associated with one of our guest speakers. Another objective of his seminar is to expose students to the great breadth and variety of botanical resources available at Berkeley, and will include field trips to the Botanical Garden and the Herbaria, and a tour of the trees of the Berkeley campus. For students thinking of majoring in the biological sciences, with an emphasis on plants, this course will provide them an overview of plant-related opportunities (e.g., research experiences, resources, faculty contacts) with which to explore their interest (and possible major) in plants. This seminar is part of the Food for Thought Seminar Series.

Lewis Feldman teaches Introductory Biology (Biology 1B) in which he hopes to convey the wonder and satisfaction of working with plants. He also teaches upper division courses in plant structure and physiology, and for his research investigates the developmental biology of roots. In his spare time he also serves as an Associate Dean in the College of Natural Resources.

Faculty web site: http://pmb.berkeley.edu/profile/lfeldman

Plant and Microbial Biology 24, Section 2
The Marvelous Miniature World of Microbes (1 unit, P/NP)
Thursday 4:00-5:00, 110 Barker Hall, Class number: 27349

This freshman seminar will introduce you to the marvelous world of microbiology. Students will split their time between light lab work and discussion-based lectures focused on the microbes that live all around us. We will touch on microbial communities, central dogma, and biological engineering with techniques that include culturing microbes, extracting and sequencing DNA, and microscopy. This pass/no pass seminar culminates in students sharing observations and images collected during different experiments in a final showcase. We seek a diverse group of students ready to use their life experiences as they explore the microbial world. No prior experience in a laboratory is necessary and students considering all courses of study are welcome!

Arash Komeili is a faculty member in the Plant and Microbial Biology Department. His research focus is the study of cellular organization in bacteria. In particular, his group studies the formation of magnetic particles by a fascinating group of microbes called magnetotactic bacteria. He has been at Berkeley since 2005.

Faculty web site: www.komeililab.org
they explore the microbial world. No prior experience in a laboratory is necessary and students considering all courses of study are welcome!

Arash Komeili is a faculty member in the Plant and Microbial Biology Department. His research focus is the study of cellular organization in bacteria. In particular, his group studies the formation of magnetic particles by a fascinating group of microbes called magnetotactic bacteria. He has been at Berkeley since 2005.

Faculty web site: www.komeililab.org

**Political Economy 24, Section 1**

**Rogues, Scoundrels and Citizens: Political Economy of Smuggling and Piracy (1 unit, P/NP)**

**Senior Lecturer Alan Karras**

**Tuesday 4:00-5:00, 122 Wheeler Hall, Class number: 23392**

This course examines four popular crimes: piracy, smuggling, drug trade and corruption, from historical and political economy perspectives. Students will read recent non-fiction (but incredibly fun) works in this area, as well as examine original historical records. The seminar aims to teach students how to evaluate these crimes against the state while giving the opportunity to connect past and present, an important skill to have in international social science education. **Freshman interested in the connection between history and other social sciences are encouraged to apply. This is a Creating Change Theme Seminar.**

Alan Karras is Associate Director of and Senior Lecturer in the Interdisciplinary Social Science Programs. 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 the concise edition of a World History textbook, an author of the AP edition of the same book, and is also engaged in researching 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 was also a member of the Boards of Editors for Cambridge University Press's 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 1**

**Discovering Brazil: An Introduction to Latin America’s Largest Country through Movies, Music, and Literature (1 unit, P/NP)**

**Professor Candace Slater**

**Tuesday 2:00-3:00, 2038 Valley Life Sciences Building, Class number: 32912**

This course uses movies, music, and a number of memorable stories by some of the most famous Brazilian authors to better understand the nation’s past and present. We will also draw on a number of exciting Brazilian guests who will be here this semester and can talk directly about important issues such as the environment and violence—a chance that is not always available! Join the group for an overview of a country that is the biggest in all of Latin America and that offers comparisons and contrasts to other countries such as Mexico and Argentina. The primary requirement for the course is to attend the classes (attendance is required) and to do the preparation (readings, film viewing, etc.) that will allow students to interact with each other as well as to get a good initial overview of a vast and surprising country.
No special preparation. Students with an interest in Latin America are particularly welcome but an existing interest is not required. All readings and class discussions will be in English.

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 1
Exploring Psychology through Improvisational Comedy and Drama (1 unit, P/NP)
Professor Sonia Bishop and Mr. Adrian Vazquez
Monday 6:00-8:00, 104 Barrows Hall, Class number: 31039

Class will meet on Mondays for two (2) hours per week, from August 31 through October 5, 2020.

Have you ever wondered why focusing on external stimuli as opposed to your internal state can help you feel better? Why some people are more in tune with their own and their friends' mental states than others? Whether we can improve our attentional skills? How young children's perceive the world? How we convey and recognize emotional states using our faces, voices and bodies? How status influences interactions?

The field of psychology allows us to address these questions from a scientific standpoint. Interestingly, many of the underlying concepts also inform the teaching, practice, and performance of improvisational theater. Improvisational theater has many forms ranging from simple party games (as in "Whose Line Is It Anyway?") to unscripted full-length plays. It is used to explore a character's goals, emotion, and relationships, and can provide a forum to examine issues that are of central interest to social psychology (e.g., challenging stereotypes). Here we interweave both these disciplines in order to introduce students to psychological concepts such as dimensional models of emotion, object permanence and divided attention in an interactive and fun setting. Through improvisational exercises we will illustrate both how an understanding of psychology can improve improvisational comedy and drama and how experience with improvisational formats can in turn illuminate and bring to life a range of psychological concepts. In this course students will learn key psychological concepts through a combination of lecture and experiential learning. Each class will begin with a short lecture on a specific psychological concept followed by improvisational games to tackle understanding of the given concept in multiple modes, and culminate in a short class reflection and discussion. This seminar presupposes NO previous improv or theater experience, or knowledge of psychology. Some people who have not done improv before may find the notion intimidating, but we encourage you to give it a go! Think of it as a form of adult 'play' where we rediscover imagination and explore ideas, and where there is no 'wrong' way of doing it. We are happy to answer further questions about what it will entail by email ahead of the class. We expect this class to appeal to students with broad interests in psychology and also improvisation.

Trigger Warning: We will provide guidance on all exercises, however as we are asking for spontaneous creativity from participants, and we live in a society where problems and injustices are deep and real, there may be moments when these issues spontaneously appear in the content of the work. We ask that you bring understanding and patience for your own mistakes and those of others for the duration of this class, and the instructors will always endeavor to maintain a safe space for all.

We may possibly be joined by other guest instructors from the Bay Area improv community. Interested students should contact the instructor at sbishop@berkeley.edu to reserve a seat in the course.

Sonia Bishop (sbishop@berkeley.edu) is an associate professor within the Department of Psychology. Her area of expertise concerns the brain basis of emotional and attentional processing and how this can go
wrong in anxiety as well as other conditions. She is also a keen amateur improviser and a member of Pan Theater in Oakland.

Adrian Vazquez (adrianjoel.vazquez+cal@gmail.com) has a decade of experience teaching improvisational theater to people ages 14-74. He has studied improv at Bay Area Theater Sports, Bard College, Upright Citizens Brigade to name a few. Now he primarily coaches, practices, and performs at All Out Comedy in Oakland.

Rhetoric 24, Section 1
Arguing with Judge Judy: Popular "Logic" on TV Judge Shows (1 unit, LG)

Monday 1:00-2:00, 7415 Dwinelle Hall, Class number: 24649

TV "Judge" shows are all over daytime TV. Are these shows presenting a perversion of our legal system or a look into that system? A fascinating aspect of TV judge shows from a rhetorical point of view is the number of arguments made by the litigants that are utterly illogical, or are perversions of standard logic, and yet are used over and over again. For example, when asked "Did you hit the plaintiff?" respondents often say, "If I woulda hit him, he woulda been dead!" This reply avoids answering "yes" or "no" (just to start with) and offers a perverted form of the logical strategy called an "a fortiori" argument ["from the stronger" in Latin]. The seminar will be concerned with identifying such apparently popular logical fallacies on "Judge Judy" and "The People's Court" and discussing why such strategies are so common. It is NOT a course about law or "legal reasoning." Students who are interested in logic, argument, TV, and American popular culture will probably be interested in this course. I emphasize that it is NOT, except in passing, about the application of law or the operations of the court system in general.

Freshmen who are interested in argument and persuasion in a television and courtroom setting.
Most of the following courses are limited to 20-25 students. First- and second-year students are given priority for enrollment. Some of these courses fulfill Letters and Science breadth requirements; for details 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.

**Computer Science 39, Section 1**  
Symmetry and Topology (2 units, P/NP)  
Professor Carlo Sequin  
Thursday 2:00-4:00, 606 Soda Hall, Class number: 32899

Symmetry plays an important role in art, fashion, architecture, engineering, computer modeling, biology, and in all the sciences in general; as well as in music, poetry, and psychology. We will explore its use in several of these domains. We will enumerate all possible types of symmetry and establish a rigorous understanding of them. We will start with simple mirror images, proceed through wallpaper patterns and hyperbolic tilings, finishing up with the symmetry of 4-dimensional "Platonic" solids.

Topology focuses on the connectivity of objects or of abstract constructions; it is important in the design and analysis of complicated shapes. It also allows us to extend the notion of symmetry to the interconnectivity of networks and to "regular maps" on surfaces of arbitrary genus (smooth donuts with one or more holes). We will get familiar with all surfaces of low genus, including Moebius bands, cross-caps, and Klein bottles.

The goal of this course is to give the participants a good enough understanding of the basic principles of symmetry and topology so they can put this knowledge to good use in their future studies. This course, even though offered by the CS Division, will involve no computer programming, but will occasionally ask participants to construct models from paper, clay, or pipe-cleaners. Students should have an interest in geometry and its many applications in art, architecture, engineering, and most domains of design. They should enjoy some abstract mathematical thinking and should not be adverse to using precise formulations to clarify some "fuzzy" concepts.

Students are welcome from many departments. In the past I have had students from EECS, ME, CE, IEOR, BioE, Math, Physics, Architecture, Art Practice, ...

Students should have some love for geometry and abstract mathematical thinking.

Carlo H. Séquin has been a professor in the EECS Computer Science Division since 1977. He has taught courses concerning the design of integrated circuits, micro processors, and campus buildings. He has also taught courses on geometric modeling with hands-on assignments in the design and fabrication of mechanical puzzles, artistic maquettes, and mathematical visualization models. Outside of the class room he has made use of symmetry and topology in the layout of solid-state image sensors at Bell Labs, in the design of the first RISC (reduced instruction set computer) chips with Professor Dave Patterson (CS), in the conception and construction of Soda Hall, the current home of the CS Division, and in the generation of various large-scale geometrical sculptures with artist Brent Collins from Gower, MO.

Faculty web site: https://people.eecs.berkeley.edu/~sequin/

**Legal Studies 39D, Section 1**  
Current Political and Moral Conflicts and the U.S. Constitution (2 units, LG)  
Mr. Alan Pomerantz
The debate about politics and 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," a supreme authority, not a supreme court. Others argue as strongly that the Court has acted properly to find and protect evolving 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 transgender and gay rights (including gay marriage); “sincerely held religious beliefs” as a defense to compliance with anti-discrimination laws; abortion; privacy; limitations on speech including “hate” speech, college speech codes, trigger warnings and micro-aggressions; and euthanasia. We will read Supreme Court cases, as well as political and legal commentary from across the political spectrum. The prime focus of the seminar is to encourage students to develop their critical thinking skills. Accordingly, students are expected to develop, support and defend 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 under the Fulbright Program 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. He is also the recipient of the 2015 Fulbright Commission Global Citizens Award, and the 2016 Global Award for his legal work. Mr. Pomerantz has participated in important and controversial matters affecting individual rights, including the right of public artistic expression, the right of privacy for acts of consenting adults, and numerous free speech cases.

Native American Studies 90, Section 1
Myth, Memory, and History: Understanding Native America (4 units, LG)
Lecturer Diane Pearson
Monday, Wednesday and Friday 11:00-12:00, 587 Barrows Hall, Class number: 22793

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
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.

Anthropology 84, Section 1
Race, Gender, and Social Life in Colonial Honduras (1 unit, LG)
Professor Rosemary Joyce
Wednesday 11:00-12:00, 192 Barrows Hall, Class number: 24108

This seminar introduces students to how we learn about people in the past through the use of archival documents. Working with digital copies of documents from the colonial Spanish archives in Sevilla, Spain, Guatemala, and Comayagua, Honduras, we will "read over the shoulder" of the writers whose words form one of our most immediate links to Spanish colonial Honduran life. Students will learn how to locate archival documents online; how to read colonial handwriting; and how we can begin to understand more about society from even brief documents, like receipts for serving as a courier. Working together, we will discuss several longer documents about the lives of native Americans who were obliged to work for Spanish citizens and petitioned for relief, about free black residents of a military fort, and about illegal trade in sugar, rum, and tobacco. This course provides participants experience in reading original, handwritten documents from the period of Spanish colonization of Central America. Many assignments involve working to transcribe the words from these handwritten documents into printed text, and some involve analyzing the content of the text. Because the documents are written in Spanish, some knowledge of Spanish is helpful, and having no prior knowledge of Spanish will limit participants' ability to understand what documents are saying.

I am an anthropologist who conducts research in archives, museums, and through field archaeology in Honduras, on sites ranging in age from the earliest known villages (occupied by 1600 BC) to colonial forts and towns from the eighteenth and nineteenth centuries. My publications deal with people's identities as men and women, and as members of different racialized groups, and how those identities influence their power and status. I am a specialist in ancient pottery, which has led me to research on foodways, including the detection of traces of chocolate in pots dating before 1100 BC. This is an aspect of my interest in everyday lives and their complexity, including feasting, ceremonies around birth and death, and artistic craft production.

Faculty web site: http://anthropology.berkeley.edu/people/rosemary-joyce

Anthropology 84, Section 2
The Woman Behind the New Deal: Frances Perkins (1 unit, P/NP)
Professor Margaret Conkey
Wednesday 10:00-11:00, 192 Barrows Hall, Class number: 33019

Have you ever wondered how something like Social Security got started? Unemployment insurance? The minimum wage? What about workers' rights? How are laborers protected today? This seminar will focus on a recent book about Frances Perkins--the first woman in any presidential cabinet, who served under FDR--and learn how she was able to create some of the most important--and still hotly debated--programs of social support in US history. In this election year, this "ethnography" of women, power and social change, especially in relation to American workers, will be an important insight into what needs to be done and how. Guest speakers will provide some insight into the progressive movement in New York City that spawned Perkins' motivations, and on other topics relevant to Perkins' life and work. Reading will be basically the paperback book (one chapter each week) by Kirsten Downey: "The Woman Behind
the New Deal: FDR’s Secretary of Labor and his Moral Conscience.” **Ideally, these would be students who are engaged today with the political process, with the upcoming election and its issues and with understanding the ways in which programs and policies for the "common good" are developed and implemented (or not).**

Professor Meg Conkey is an anthropologist and archaeologist who has long engaged with issues of the roles of women in history and prehistory. She has taught at Berkeley for 30+ years, and has held numerous positions in the discipline related to feminist and gender anthropology and its practice. She has a "connection" of sorts with the subject of the seminar, as they both attended (decades apart!) the same undergraduate institution (Mt Holyoke College) and share an attachment to a specific location in Maine, where Perkins had a family homestead.

Faculty web site: http://anthropology.berkeley.edu/users/margaret-w-conkey

**Electrical Engineering 84, Section 1**  
**Hands-on Ham Radio (2 units, P/NP)**  
**Professor Michael Lustig**  
**Wednesday 10:00-12:00, 531 Cory Hall, Class number: 28089**

Amateur radio (ham radio) is a popular hobby and service in which licensed Amateur Radio operators (hams) operate communications equipment. Although Amateur Radio operators get involved for many reasons, they all have in common a basic knowledge of radio technology and operating principles, and pass an examination for the FCC license to operate on radio frequencies known as the “Amateur Bands.” These bands are radio frequencies reserved by the Federal Communications Commission (FCC) for use by ham radio operators.

The role of amateur radio has obviously changed with the presence of the internet. Remarkably, amateur radio today offers unique opportunities and capabilities due to its independence on commercial infrastructure. For example, it is a legal ground for hands-on experimenting with wireless communication technology and it allows communication in emergencies and from remote areas.

What can you do as a ham?

* Talk to people (near and far)  
* Build stuff (amps, sdr’s, antennas, receivers)  
* Emergency communications (emcom)  
* First person view (FPV) vehicles (drones) at much higher power  
* Hit satellites, moon, meteors, airplanes (with radio waves! … not something else)  
* Digital communication with Automatic Positioning and Reporting System, packet radio  
* Use Repeaters covering Bay-Area, California and the United States' mesh networks

In the seminar we will learn about ham radio and experience it. The idea is that students will be able to take the ham licensing exam and become licensed radio operators at the end. Each student will also get to keep a VHF/UHF handheld amateur radio at the end of the course.

Michael (Miki) Lustig is an Assistant Professor in EECS. He joined the faculty of the EECS Department at UC Berkeley in Spring 2010. He received his B.Sc. in Electrical Engineering from the Technion, Israel Institute of Technology in 2002. He received his Msc and Ph.D. in Electrical Engineering from Stanford University in 2004 and 2008, respectively. His research focuses on medical imaging, particularly Magnetic Resonance Imaging (MRI), and very specifically, the application of compressed sensing to rapid and high-resolution MRI, MRI pulse sequence design, medical image reconstruction, inverse problems in medical
imaging and sparse signal representation.

Faculty web site: http://www.mlustig.com

**Electrical Engineering 84, Section 2**  
**Engineering for the Brain: Mind Meets Matter (1 unit, P/NP)**  
**Professor Chunlei Liu**  
**Tuesday and Thursday 1:00-2:00, 299 Cory Hall, Class number: 31607**

Meets the first half of the semester, beginning August 27, 2020.

Advances of neural engineering, both physical and biological, are rapidly changing the way we see and interact with our brain. Modern imaging allows us to observe our brain in action noninvasively; brain stimulation allows us to modulate neuronal activities and behaviors; genetic editing allows us to modify the basic building blocks of the brain. While these technologies have brought enormous medical benefits and are improving our knowledge of the inner workings of the brain, they also raise many profound questions. The course will introduce modern neural engineering methods in a non-technical way. We will discuss their medical and scientific impact and their legal, ethical and societal implications. The course is open to all majors. There will be no equations to be solved. Only a curious mind is required.

Dr. Chunlei Liu is an Associate Professor in the Department of Electrical Engineering and Computer Sciences, and the Helen Wills Neuroscience Institute. He received his PhD from Stanford University. Before joining UC Berkeley, he was an Associate Professor of Radiology and Biomedical Engineering at Duke University. He currently researches in brain imaging and modulation.

**English 84, Section 1**  
**High Culture, Low Culture: Modernism and the Films of the Coen Brothers (2 units, P/NP)**  
**Professor Julia Bader**  
**Monday 10:00-12:00, 134 Dwinelle Hall, Class number: 32775**

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 attend events at the Pacific Film Archive and Cal Performances.

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

**Geography 84, Section 1**  
**Capitalism and Sexuality (2 units, P/NP)**  
**Professor Sharad Chari**  
**Tuesday 11:00-1:00, 575 McCone Hall, Class number: 33084**

What is the relationship between capitalism and sexuality? The modern world is undeniably shaped by capitalism, which remakes people and places around the planet in often dramatic ways, from the scale of the body and the household to wider scales of nation, empire and the world. In what ways is sexuality part of this process of constant transformation of people’s bodies, desires, livelihoods, and senses of political agency? What is the relationship between the emergence of capitalism and regulation of the family, in making 'normal' workers and citizens, and what does this mean for 'abnormal' forms of sexuality:
of women, militants, and queer people? In what ways does the politics of sexuality question capitalism and imperialism? This course rethinks how capitalism and sexuality are intertwined in the modern world in specific ways.

Sharad Chari is Associate Professor in the Department of Geography. He has worked on a variety of topics, including on agrarian and industrial change in south India (the 2004 book, Fraternal Capital), on the history and geography of racial segregation and struggle in South Africa (books in progress called Apartheid Remains and Remains of Revolution); and he is currently working on projects in oceanic studies and on the queer critique of the transition from apartheid in South Africa. A thread running through these projects is the critique of capitalism in different parts of the world, with caste, gender, race and sexuality in mind.

**History 84, Section 1**  
What is Fascism? (1 unit, P/NP)  
Professor Massimo Mazzotti  
**Monday 2:00-3:00, 470 Stephens Hall, Class number: 26505**

This seminar addresses this fundamental question through an exploration of the historical emergence of Fascism as a political movement in interwar Europe. We will discuss the ideological roots, political characterizations, and specific trajectories of the exemplary Fascist regimes of Italy and Germany. We will make comparative considerations relative to contemporary neo-fascist movements. We will explore with particular attention the "modern" nature of historical Fascist regimes and how they systematically mobilized science and technology to achieve their overarching goals.

Massimo Mazzotti is a professor in the Department of History and the Director of the Center for Science, Technology, Medicine, and Society. His research focuses on the social and political dimension of science and technology.

Faculty web site: https://history.berkeley.edu/massimo-mazzotti

**Integrative Biology 84, Section 1**  
Berkeley Natural History (1 unit, P/NP)  
Lecturer Alan Shabel  
**Friday 10:00-11:00, 5053 Valley Life Sciences Building, Class number: 22017**

California is a natural history phenomenon, with a complex geology, a diversity of ecosystems, and a rich flora and fauna. In this seminar, you will be introduced to the natural history of Berkeley through a study of the common plants and animals of the wildland-urban interface. We will combine short lectures with local field trips and an examination of museum specimens. We will give special attention to the role of fire in East Bay ecosystems. There will be no exams or homework assignments, and the course is open to freshmen and sophomores.

Professor Alan Shabel is a specialist on African mammals with a primary focus on otters, but his interests range across organismal biology and ecology, and he is fascinated by the natural history of California.

**Vision Science 84, Section 2**  
Comparative eye design: Differences between animals and relationship to visual needs (1 unit, P/NP)  
Professor Christine Wildsoet  
**Monday 10:00-11:00, 394 Minor Hall, Class number: 29474**
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 examines and compares the eyes and vision of different animals, as primitive as jellyfish to other primates, in the context of their usual habitat and behavior. Those interested in ecology, vet med through to medicine and optometry may find this topic interesting, especially if you are curious about what eyes look like, as some eye dissections are included.

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 pharmacology teaching and coordinating two summer research programs for Optometry students. She is also a member of the Vision Science group. Her research is multidisciplinary as is her research group, which includes basic scientists and clinicians, both local and international. The focus of research in her lab is myopia (nearsightedness), specifically the mechanisms underlying the development of myopia and its clinical management. The overriding goals of this research is understand the environmental factors driving the current myopia epidemic and the development of novel and improved treatments for controlling 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 as well.

Faculty web site: http://wildsoetlab.berkeley.edu