Freshman & Sophomore Seminars at Berkeley

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

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

- Updates to the seminar lists included in this document on easy-to-follow web pages
- Revisions to this document
- Pop-up menus to help students find seminars of interest based on seminar topics
- Information regarding the Food for Thought Seminar series, a wonderful way for faculty and students to get better acquainted in an informal setting before or after class

L&S Discovery Courses

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

This document was last updated on October 17, 2019.
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.

Anthropology 24, Section 1
Becoming Human (1 unit, P/NP)
Professor Lisa Maher
Tuesday 11:00-12:00, 2251 College Ave. #101, Class number: 23123

How did we become human and what makes us unique? As a topic that captures the imagination in our quest to understand our species, it seems like every month there is a new discovery and a new piece to the ever-changing puzzle. This course traces the history of the human lineage, with a particular focus on the last phases of human evolution—namely, how and why Homo sapiens thrived and flourished. Recent developments in our understanding of the fossil record, ancient DNA, and archaeological data have revolutionized our understandings of what make us human and how those characteristics evolved. We will examine the most recent scientific discoveries and explore how these data are covered in the media and other popular venues. Through this lens, we will explore the emergence of the first bipedal hominids, look at the earliest evidences for tool use, discuss theories about what happened to our closest fossil relatives, the Neanderthals and newly-discovered Denisovans, examine the appearance of modern human behavior, and explore how Homo sapiens came to dominate the globe. Freshman students; no background in science, evolution, or archaeology necessary.

Lisa Maher is a prehistoric archaeologist in the Department of Anthropology who has been working in the eastern Mediterranean for twenty years. She is involved in research all over the globe and directs several excavation projects in Jordan, most recently at a 20,000-year old hunter-gatherer aggregation site that is the largest Palaeolithic site in region and with the country's earliest hut structures and human burials. She has also recently started a project in Cyprus exploring the island's earliest sea-faring hunter-gatherer groups. Specializing in geoarchaeology, ancient stone tool technologies, and cultural heritage conservation, she is interested in the intersections between past landscapes and people, from our earliest human ancestors to the present.

Faculty web site: http://anthropology.berkeley.edu/people/lisa-maher

Bioengineering 24, Section 1
Playing well with others—developing teamwork through Role-Playing Games (RPGs) (1 unit, P/NP)
Professor Terry Johnson
Wednesday 4:00-5:00, 179 Stanley Hall, Class number: 30665

Role-Playing Games (RPGs) are collaborative storytelling tools wherein a Game Master (GM, sometimes DM for ‘Dungeon Master’) designs and performs the world, while Players take on the role of a character interacting with that world. The story is told through a combination of GM agency, Player agency, and random numbers (typically generated using RPG dice) that determine the outcome of an intended action according to an established set of rules. There are RPGs that operate on different models, too, but the above is most typical.

RPGs are a great way to learn how to lead and participate in a team, to flex your creative muscles, or simply to set aside the week’s homework for an afternoon in favor of something exciting and different. This class is designed for folks who are
interested in RPGs, but does not assume that you have experience with either GMing or playing. We'll often use Dungeons and Dragons 5th Edition (D&D 5E) as an example, so access to a Player’s Handbook will be handy, but not essential. It’s also fun to have your own physical RPG dice set to play with (and yell at), but likewise, not essential. 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 teaching in this field, 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).

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: 28039

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
Homer’s Odyssey (1 unit, P/NP)
Professor Dylan Sailor
Thursday 3:00-4:00, 122 Wheeler Hall, Class number: 24151

In this freshman seminar, we will read and discuss a landmark of world literature, the ancient Greek epic poem called the Odyssey. The work tells the story of the Greek hero Odysseus’ struggle to make his way back home after the Trojan War and of what happened when he got there. Along the way, we will look at what the poem has to say about very many things, including identity, violence, the nature of “home,” the relationship between household and political community, gender, fame, family, and the power of storytelling. There will be monsters, strange lands with strange customs, sorceresses, conversations with ghosts, transformation and shapeshifting, gods and goddesses, storms, shipwrecks, tricks and schemes, lies
and tall tales, and all kinds of other wild stuff. 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. **Since the class is essentially just reading a book, thinking about it, and talking about it, students who like the idea of doing that will probably have a lot more fun in the seminar than students who do not like the idea of doing that.**

Professor Sailor grew up in and around Seattle but has lived in California for many years. He received BAs in Classics and in History from the University of Washington in 1995 and a PhD in Classics from Berkeley in 2002. He taught at UC San Diego in the Department of Literature from 2002-2005 before coming back to Berkeley to teach in the Department of Classics. His research mostly concerns the literature and culture of ancient Rome, and has focused on how the Romans wrote about their own history.

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

**English 24, Section 1**
**Emily Dickinson (1 unit, P/NP)**
**Professor Bryan Wagner**
**Wednesday 4:00-5:00, 189 Dwinelle Hall, Class number: 32148**

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


Faculty web site: https://english.berkeley.edu/profiles/74

**Environmental Science, Policy, and Management 24, Section 1**
**Issues in Natural Resource Conservation (1 unit, P/NP)**
**Professor David Wood**
**Friday 10:00-11:00, 214 Haviland Hall, Class number: 26008**

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.

Professor Wood's research interests include host-selection behavior of forest insects, chemical ecology, the biology and ecology of bark beetles, forest pest management, the biodeterioration of wood by insects, and insect/pathogen/tree interactions. In 1995 he was awarded the Berkeley Citation for distinguished service to the University.
Among his numerous publications, he recently co-authored three research papers, one that is published in Forest Ecology and Management, one in Forest Science and one in Environmental Entomology.

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

**Environmental Science, Policy, and Management 24, Section 2**

**Diversified Farming Systems: From Theory to Practice (1 unit, LG)**

Professor Kathryn De Master

, Location for on-campus meeting of 4/17/20 1-5 pm to be determined., Class number: 26009

**Off-Campus field trip will take place on Saturday, April 18, 2020 from 7:00 a.m. to 8:00 p.m., driving time not included in contact hours.**

This course offers an introduction to the theory and practice of diversified agro-ecological farming systems. Our seminar will combine in-class instruction with a field trip 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.**

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.

Faculty web site: http://ourenvironment.berkeley.edu/people_profiles/kathryn-de-master/

**French 24, Section 1**

**Immigration in France: The Arabic Paris (1 unit, P/NP)**

Professor Thoraya Tlatli

**Thursday 2:00-3:00, 4125A Dwinelle Hall, Class number: 30856**

This course is designed to give a new perspective on the city of Paris when it is considered through the perspective of its immigration history. It is, as well, an introduction to the history of North African immigration in France in the twentieth- and twenty-first centuries. We will first focus on the main historical events that rendered the massive North African immigration possible and sometimes unavoidable, because of French colonialism. **We will then pay close attention to the various cultural ways in which the city of Paris has been shaped and transformed by immigration, throughout the twentieth- and twenty-first centuries. We will consider the ways in which the city of Paris has been in some ways redefined by its North African immigrant population by examining cultural documents, such as films, music, food and literature. Course taught in ENGLISH. No knowledge of French is needed.**

**French 24, Section 2**  
**Surfing the French New Wave (1 unit, P/NP)**  
**Professor Nicholas Paige**  
**Wednesday 3:00–4:00, 4125A Dwinelle Hall, Class number: 32157**

The French New Wave is perhaps the most emblematic moment in modern cinema, one that continues to inspire filmmakers from Los Angeles to Teheran to Hong Kong. This seminar will give students the opportunity to explore a dozen or so movies from this extraordinary flowering of filmmaking talent in the late 1950s and early 1960s. Films discussed include works by Godard, Truffaut, Varda, Rohmer, and Resnais, just to name a few. We will also be reading some important short essays from the period that will help bring the films’ preoccupations into focus. Students will be able to stream subtitled versions of the films on their own schedules. For additional details, please visit dept. website at http://french.berkeley.edu  
**Course taught in ENGLISH. No knowledge of French is needed.**

Along with the New Wave and the history of Paris, Professor Paige teaches seventeenth- and eighteenth-century French literature and culture. His main research area is the history of the novel, with special interest in quantitative approaches to literary history. He has also published on Jean-Luc Godard.

Faculty web site: http://french.berkeley.edu/people/detail.php?person=12

**Global Studies 24, Section 2**  
**Global South in the NY Times: Reading like an Anthropologist (1 unit, P/NP)**  
**Lecturer Clare Talwalker**  
**Wednesday 3:00–4:00, 78 Barrows Hall, Class number: 23188**

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 also co-editor of a UC Press book series Poverty, Interrupted. Trained in cultural anthropology, she has written about the public sphere, social inequalities and postcoloniality in India. She has also written about students working to abolish poverty. She offers classes on poverty/inequality, political economy, cultures and capitalisms, and India. Talwalker grew up in Mumbai, India. She earned her B.A. at Dartmouth College and her Ph.D. at Duke University.

**Global Studies 24, Section 3**  
**Best Movies of All Time (1 unit, P/NP)**  
**Lecturer Peter Bartu**  
**Thursday 5:00–6:00, 210 Dwinelle Hall, Class number: 24287**
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.

Integrative Biology 24, Section 1
Ethnobiology, Nutrition, and Global Food Systems (1 unit, P/NP)
Professor Thomas Carlson
Tuesday 10:00-11:00, 4110 VLSB, Class number: 19988

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 ethnolinguistic 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/carlsont

Integrative Biology 24, Section 2
How and Why Do Birds Sing (1 unit, P/NP)
Professor George Bentley
Tuesday 2:00-3:00, 4110 VLSB, Class number: 19989

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**  
*Animal Navigation: Which Way is Home? (1 unit, LG)*  
*Professor Roy Caldwell*  
*Monday 2:00-3:00, 5192 VLSB, Class number: 19990*

A homing pigeon can return to its loft after being shipped one thousand km to a place it has never been. A whale spends its summers in the Bering Sea and its winters near Maui. A female sea turtle returns for the first time to a beach where she hatched thirty years earlier to lay her own eggs. A Monarch butterfly flies south two thousand km to spend the winter in a secluded grove in central Mexico. A limpet returns forty cm to a favorite depression in a rock. The abilities of animals to navigate have intrigued biologists for decades. We will read a series of papers describing how animals navigate and how they use such methods as landmarks, celestial cues, and geomagnetic fields to determine where to go and what route to follow. We will also attempt to replicate experiments that suggest that humans are able to navigate using geomagnetic fields. This seminar is as much about the process of science as it is about animal navigation. We will first explore examples of animal navigation and how the underlying mechanisms are being researched. We will then examine experiments that suggest a human navigation ability based on geomagnetic input, and finally we will design an experiment to test if humans have the ability to detect and/or use a geomagnetic sense as do many other animals. At the end of the semester each student will write a short scientific paper presenting the results of the class experiment. The seminar is designed for students interested in biological research. Registration for this seminar is limited to 15 students.  
**The seminar is designed for students interested in biological research.**

My research interests lie in invertebrate behavior and ecology with much of my work centered on the behavioral ecology of stomatopod crustaceans, a group of tropical marine predators. The initial focus of this research was on how the evolution of potentially lethal weapons influenced stomatopod biology. These studies dealt mainly with communication and the functions of aggression. More recent research expanded to include the evolution of mating systems, interspecific communication, sensory ecology, prey selection and the biomechanics of the strike. We have also used stomatopod populations as bio-indicators to assess the health of tropical coastal habitats. I have also become interested in the behavior of blue-ringed and other pygmy octopuses. We are currently studying the behavior of several species. Much of my research has centered in the tropics including programs at Lizard Island, Moorea, Panama and Indonesia.

Faculty web site: http://ib.berkeley.edu/people/faculty/caldwellr
Integrative Biology 24, Section 4  
Marine Ecosystems in Peril (1 unit, P/NP)  
Professor Wayne Sousa  
Monday 3:00-4:00, 5192 VLSB, Class number: 19991

Marine ecosystems are experiencing severe stress and disturbance from a variety of human activities, including climate change (warming temperatures, acidification, intensification of storms, and sea-level rise), coastal development (including mariculture), pollution, over-exploitation of resources, and introductions of non-native species. This seminar will examine case studies of these phenomena and others, and explore ways of reducing their impacts or restoring already damaged habitats. We will draw our information primarily from peer-reviewed scientific literature. A weekend field trip to a marine habitat will illustrate some of the harmful local impacts of human activities. I'm looking for students with an interest in ecology and environmental science. Prior knowledge of marine habitats and organisms is not a requirement.

I have been a faculty member at Berkeley since 1977, first as a member of the Zoology Department, and now Integrative Biology. My early research was on the response of seashore communities to natural disturbances. I then studied salt marsh host-parasite interactions, focusing on the host snail, Cerithidea californica and its larval trematode parasites. I am now investigating the biological and physical factors that structure tropical mangrove forests on the Caribbean coast of Panama.

Faculty web site: https://sousalab.squarespace.com/

Integrative Biology 24, Section 5  
The Emergence of Infectious Disease (1 unit, P/NP)  
Professor Michael Boots  
Wednesday 4:00-5:00, 4110 VLSB, Class number: 24265

The emergence of new and the re-emergence of known infectious diseases continues to cause devastating epidemics, not only in human populations, but also in agriculture and wildlife. Where do they come from? Why do they emerge? Can we predict the next one? How virulent are they likely to be? This seminar will discuss these questions in the context of evolution and ecology.

My research focuses on the ecology/epidemiology and evolution of infectious disease. Parasites and pathogens continue to cause a major burden to human health, cause significant damage in agriculture, and are ubiquitous in nature. The overall aim is to understand the evolution of parasites, of host defense and how infectious organisms spread, persist and affect their host populations. We use a combination of evolutionary theory, experimental host-parasite systems, epidemiological models of wildlife and human tropical disease, and field entomology.

Integrative Biology 24, Section 6  
The Darwinian Revolution (1 unit, LG)  
Professor Brent Mishler  
Thursday 10:00-11:00, 4110 Valley Life Sciences Building, Class number: 24288

The Darwinian Revolution was one of the greatest upheavals in human thought, involving the very basis of our self-awareness: Where did we come from? What is or should be the basis for our ethics and social behavior? Where are we going? Topics to be considered include the historical antecedents of Darwin’s theories; the scientific evidence for evolution and natural selection; the impact of Darwinism on religion, social theory, and ethics; later scientific developments and recent challenges by latter-day creationists. The goal is to use these interdisciplinary topics as an exemplar of scientific methods and change, and of the unsteady relationship between science and the public. In addition to attending and participating in each
week's lecture/discussion, each student will be required to write a short paper (five pages maximum) due at the end of the semester.

Brent Mishler is Director of the University and Jepson Herbaria at the University of California, Berkeley, as well as a professor in the Department of Integrative Biology, where he teaches phylogenetic systematics and plant diversity. He received his Ph.D. from Harvard University in 1984, and was on the faculty at Duke University in Durham, NC for nine years before moving to UC Berkeley in 1993.

Faculty web site: http://ucjeps.berkeley.edu/people/mishler.html

**Linguistics 24, Section 1**  
**Language Myths (1 unit, P/NP)**  
**Professor Larry Hyman**  
**Wednesday 11:00-12:00, B4 Dwinelle Hall, Class number: 20186**

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: 20323**

The class will be held on Thursdays for seven (7) weeks, from January 30 through March 12, 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
Molecular and Cell Biology 90E, Section 1  
Matter, Mind, Consciousness (1 unit, P/NP)  
Professor David E. Presti  
Thursday 11:00-12:00, 107 Mulford Hall, Class number: 18492

All we know comes to us via our mental experience: our thoughts, feelings, perceptions, and conscious awareness. However, it is a deep mystery as to 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 take a science of consciousness to a place of deeper insight. We will address this question 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. This seminar is part of the Food for Thought Seminar Series.

David Presti has taught neuroscience at UC Berkeley for twenty-eight years. For the past fifteen 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/

Music 24, Section 1  
Javanese Shadow Play and Its Music (1 unit, P/NP)  
Professor Benjamin Brinner  
Tuesday 1:00-2:00, 243 Morrison Hall, Class number: 32368

This seminar explores the use of music as an integral part of theatrical story telling through the medium of Javanese shadow plays. These performances bring together two-dimensional puppets, intricately carved and painted, with story telling, song, and instrumental music in a show that mixes humor, philosophy, drama, and political commentary, on the basis of characters and plots derived from local versions of the Indian ‘epics’ Mahabharata and Ramayana. The course will culminate in attendance at, and discussion of, a Javanese shadow play performed on campus. There will be opportunities to discuss music in relation to other types of theatrical performance. No prior experience necessary.

A member of the faculty in the Department of Music at UC Berkeley since 1989, I teach undergraduate and graduate courses in ethnomusicology, drawing on many years of research in Indonesia and Israel, as well as less extensive engagement with people making and enjoying various kinds of music in the US, Ireland, and the UK. I am particularly interested in how musicians know what they know and do what they do, with focus on interaction among members of an ensemble and expert memory for music. Other topics I research and teach include musical instruments and music in support of oral narrative, including the role of music in accompanying Javanese shadow plays.

Natural Resources 24, Section 1  
Global Environment Theme House Freshman Seminar (1 unit, P/NP)  
Professor Kate O’Neill  
Monday 5:00-6:30, Clark Kerr Campus, Building 1, Class number: 26192
After the formal sessions, the professor and students may continue their discussion informally over dinner in the Dining Commons. Food for Thought dining arrangements and field trip arrangements will be discussed in class.

The goal of this Freshman Seminar is to bring students and faculty together to explore issues such as global environmental change, policy and management of natural resources, sustainable rural and urban environments, and environmental leadership. The seminar will provide students and faculty a forum to exchange ideas, challenge one another’s thinking, and share experiences in a small group setting. Students will have the opportunity to do research and teach their peers about regional to global environmental issues in preparation for Theme Program field trips and guest speakers. Course enrollment is restricted to Global Environmental Theme House participants. Obtain CEC from the instructor. This seminar is part of the Food for Thought Seminar Series. 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
Thursday 1:00-2:00, 252 Barrows Hall, Class number: 30824

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
How It’s Made (1 unit, P/NP)
Professor Peter Hosemann
Monday 12:00-1:00, 47 Evans Hall, Class number: 28576

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.

**Nuclear Engineering 24, Section 2**
**Radioactivity and Society: The Good, the Bad and the Ugly (1 unit, P/NP)**
**Professor Eric Norman**
**Thursday 9:00-10:00, 41 Evans Hall, Class number: 28577**

Ever since its discovery over a hundred years ago, the phenomenon of radioactivity has had profound effects on our society. From Madam Curie to Homer Simpson, radioactivity has been the subject of much fact and fiction. In this seminar, we will examine the history of radioactivity, its uses in medicine, industry, and space exploration, as well as the ways in which society has viewed this often misunderstood physical phenomenon. **This course is designed for any student interested in becoming better informed about both the positive and negative aspects of radioactivity and its influences on society.**

Eric Norman is an Emeritus Professor of Nuclear Engineering. Professor Norman taught both undergraduate and graduate level courses in nuclear physics in the Nuclear Engineering Dept. from 2006 to 2014. Previously he worked as an experimental nuclear scientist at Lawrence Livermore and Lawrence Berkeley National Laboratories. His research interests include neutrino physics, nuclear astrophysics, and nuclear forensics for non-proliferation and national security. He is a fellow of the American Association for the Advancement of Science and the American Physical Society.

Faculty web site: www.nuc.berkeley.edu/people/eric_norman

**Political Economy 24, Section 1**
**Political Economy in Contemporary Perspective (1 unit, P/NP)**
**Senior Lecturer Alan Karras**
**Tuesday 4:00-5:00, 210 Dwinelle Hall, Class number: 21460**

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

Alan Karras is Associate Director of and Senior Lecturer in the 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.
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 1:00-2:00, 210 Dwinelle Hall, Class number: 24127

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. The goal is to look at both its pressing problems and overwhelming creativity and resilience. As one large chunk of Latin America, Brazil offers both comparisons and contrasts to other countries such as Mexico and neighboring Argentina. However, it is also part of the larger Portuguese-speaking world which includes not just Portugal but also African countries including Angola and Mozambique, as well as outposts in Asia. In addition, since Brazil is the size of the continental U.S., it invites comparisons between how slavery played out in both and still affects continuing cultural and artistic forms. 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 one another 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 2
The Cognitive Neuroscience of Identity: Individual, Cultural, and Beyond (1 unit, P/NP)
Professor Sonia Bishop and
Monday 1:00-2:00, 179 Stanley Hall, Class number: 23285

We are able to open this course to 25 students thanks to the Andrew W Mellon Foundation. In this course, we will examine various key aspects of the psychology and cognitive neuroscience of identity, including individuality, emotion, memory, creativity, and the experience of self. We will explore these topics with the aid of selected Cal performances which illustrate, evoke, or challenge aspects of the experience of identity. Students are required to attend at least three of the selected Cal performances. Admission will be free and each enrolled student can bring a friend for free as well. Please don’t sign up if you can’t make the shows! Cal Performance Dates:

2/9/20: An Evening of Jazz Duos Onstage (held in Zellerbach Hall)
2/22/20: Cirque Eloize; Hotel (held in Zellerbach Hall)
4/7/20: Yamato: The Drummers of Japan; Passion (held in Zellerbach Hall)
5/1/20: The Tallis Scholars; The Field of the Cloth of Gold (held at First Congregational Church)

Fifth performance to be announced.
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.

**Psychology 24, Section 3**  
**The Shattered Mind (1 unit, P/NP)**  
**Professor Mark D’Esposito**  
**Monday 12:00-1:00, 2038 VLSB, Class number: 30672**  

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

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

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

**Spanish 24, Section 1**  
**#metoo in the Time of Cervantes? Women’s Roles in Dramas of Justice and Mercy (1 unit, P/NP)**  
**Professor Emilie Bergmann**  
**Thursday 1:00-2:00, 204 Dwinelle Hall, Class number: 32258**  

The abuse of authority by powerful men against women is a central theme in the classic theater of seventeenth-century Spain. A peasant uprising is inspired by a woman outraged at her assault by a nobleman in Lope de Vega’s Fuenteovejuna. A woman abandoned by her lover guides a prince toward an ethical awakening in Calderón’s La vida es sueno (Life is a Dream). We will read selected chapters of Don Quixote, Part I, in which women successfully defend their autonomy and honor, and Part II, which presents an anti-Machiavellian contrast between Sancho’s merciful wisdom and the gratuitous cruelty of aristocrats. At the end of the seventeenth century, Sor Juana Ines de la Cruz indicts the violence of the conquest of Mexico in the introductory loa to El divino Narciso. Texts may be read in Spanish or English translation; discussion in English. Requirements: weekly participation; each student will be responsible for formulating questions and leading discussion for one meeting and writing 2 short essays.

Required Texts (all available on bCourses):  
Selected episodes (5 chapters) of Don Quixote.  
Pedro Calderón de la Barca, La vida es sueño / Life is a Dream  
“” . El alcalde de Zalamea / The Mayor of Zalamea.  
Sor Juana Inés de la Cruz, El divino Narciso / The Divine Narcissus

Emilie L. Bergmann, Professor of Spanish, Emerita (Ph.D., Johns Hopkins University). Her research and teaching focus on questions of gender and sexuality, on visual culture in early modern Spanish and Colonial Latin American literature and on twentieth-century women writers in Castilian and Catalan. She is co-editor of ¿Entiendes? Queer Readings, Hispanic Writings (Duke UP, 1995), Approaches to Teaching the Works of Sor Juana Inés de la Cruz (MLA, 2007), and the Routledge Research Guide to the Works of Sor Juana Ines de la Cruz (2017).
**FRESHMAN AND SOPHOMORE SEMINARS**

Most of the following courses are limited to 20-25 students. First- and second-year students are given priority for enrollment. 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.

**Legal Studies 39D, Section 1**  
**Current Political and Moral Conflicts and the U.S. Constitution (2 units, LG)**  
Mr. Alan Pomerantz  
**Thursday 10:00-12:00, 72 Evans Hall, Class number: 18484**

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.

**South and Southeast Asian Studies 39, Section 1**  
**Southeast Asian Performing Arts (2 units, LG)**  
Dr. Maria Josephine Barrios-Leblanc, Ms. Cynthia Aban and Ms. Ninik Lunde  
**Tuesday 9:00-11:00, 45 Evans Hall, Class number: 17143**

The course focuses on Southeast Asian performance—the music of Vietnam, Indonesian dances, and Philippine theater and music. Discussions shall be guided by the following questions: How have geography, religion, social structures, customs, and beliefs shaped indigenous performing art forms? How are performing traditions revitalized in contemporary times? How have experiences of colonialism and social movements informed the work of performing artists? How can we read/view these works today?
hope to attract students interested in one, both, or all of the following: the Southeast Asian region, the performing arts (music, dance, theater), and history.

Maria Barrios-Leblanc has a Ph.D. in Filipino (Philippine Literature) from the University of the Philippines (UP). Before coming to UC Berkeley, she served as Associate Professor and Associate Dean of the UP College of Arts and Letters. She has written/edited more than a dozen books including language textbooks, poetry collections and research on Philippine drama and literature.

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

Cynthia Aban is a singer and kulintang player with the multi-awarded performing band Grupong Pendong which utilizes indigenous instruments in creating contemporary music. Before coming to UC Berkeley, she was a Ph.D. student at the University of the Philippines studying Filipino psychology.

Faculty web site: http://sseas.berkeley.edu/people/faculty/chat-aban

Ninik Lunde has a Master's degree in Linguistics from the University of Wisconsin. She taught Indonesian language at UW Madison for five years and has been teaching beginning and intermediate Indonesian since 1993 at UC Berkeley. She has created audio-visual materials for her classes. Her academic interests include linguistics and comparative literature. In addition to language teaching, she also has been performing Javanese, Balinese and Sumatranese dances on campus, in the Bay Area and at dance festivals.

Faculty web site: http://sseas.berkeley.edu/people/faculty/ninik-lunde

South and Southeast Asian Studies 39, Section 2
Island Imaginations: Exploring the Short Story in the Philippines, Indonesia, Malaysia and Singapore (2 units, LG)
Lecturer Karen Llagas and Professor Sylvia Tiwon
Friday 10:00-12:00, 50 Barrows Hall, Class number: 17144

The Philippines, Indonesia, Malaysia and Singapore are multicultural island nations in Southeast Asia with strong story-telling traditions. We will read and discuss the short story as a modern narrative form through which writers have explored questions of nation and identity in colonial and postcolonial times. The seminar introduces students to some of the major contemporary themes including romance, resistance, gender, the challenges of modernization and the new global order.

Karen Llagas lectures in UC Berkeley's Beginner and Intermediate Filipino classes; she teaches Tagalog privately and in group classes in the San Francisco Bay Area and online.

Sylvia Tiwon is an Associate Professor in the Department of South and Southeast Asian Studies. She teaches literature, gender, and oral and cultural studies of Southeast Asia with a focus on Indonesia. Her areas of interest include national and pre-national literatures, oral discourse and mythologies, as well as socio-cultural formations at the national and sub-national levels.

Faculty web site: http://sseas.berkeley.edu/people/faculty/sylvia-tiwon

South and Southeast Asian Studies 39, Section 3
Contentious Politics and Southeast Asian Literature (Focus on Vietnam and the Philippines) (2 units, LG)
Dr. Maria Josephine Barrios-Leblanc and Lecturer Hanh Tran
Friday 2:00-4:00, 211 Dwinelle, Class number: 17145

Do you like debates? How do you think people can debate about politics through literature? This course looks into the dynamics of literature and politics in Vietnam and the Philippines by asking the following
questions: How have writers articulated their beliefs on colonialism, human rights, gender and class through poetry and fiction? When does ideology inform literary techniques? How can we study specific genres such as prison literature, testimonial literature, guerrilla literature, and underground newspapers and literary magazines?

Maria Barrios-Leblanc has a Ph.D. in Filipino (Philippine Literature) from the University of the Philippines (UP). Before coming to UC Berkeley, she served as Associate Professor and Associate Dean of the UP College of Arts and Letters. She has written/edited more than a dozen books including language textbooks, poetry collections and research on Philippine drama and literature.

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

Hanh Tran holds an M.A. degree in South and Southeast Asian Studies with a concentration in Political Studies and Literature. He has been a lecturer of Vietnamese language and literature at UC Berkeley since 2006. He has also guest lectured and co-taught several seminars on Southeast Asian Literature and Movies. His current research interest is in Southeast Asian Material Culture and History of Art. He also sponsored several DeCal courses on Vietnamese culture through films.
SOPHOMORE SEMINARS

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

Astronomy 84, Section 1
The Nature of Science and Time (1 unit, P/NP)
Professor Alex Filippenko
Friday 10:00-12:00, 131 Campbell Hall, Class number: 23577

We will consider the nature of space and time, especially in the context of our understanding of the overall properties of the Universe. The major topics from the following best-selling book will be discussed: "A Briefer History of Time," by Stephen Hawking. Our journey will take us through the basics of the two pillars of modern physics: quantum mechanics and Einstein's general theory of relativity. We will also explore string theory, which attempts to unify these two great fields by postulating the existence of many hidden dimensions in which packages of energy vibrate. Though the seminar is intended for non-science majors, the discussion will be held at a fairly high level; thus, students must have already successfully completed (with a grade of "B-" or higher) at least one of the following courses: Astronomy C10, L&S C70U, Astronomy 7A, or Astronomy 7B.

Alex Filippenko joined the UC Berkeley faculty in 1986. An observational astronomer who makes frequent use of the Hubble Space Telescope, the Keck 10-meter telescopes, and Lick Observatory, he engages in research on exploding stars, active galaxies, black holes, gamma-ray bursts, and observational cosmology. Having coauthored nearly 1000 articles on his research, Filippenko has received numerous awards and is one of the world's most highly cited astronomers; he is also an elected member of both the National Academy of Sciences and the American Academy of Arts & Sciences. He was a member of both groups that showed that the expansion of the Universe is accelerating with time. This discovery was honored with the 2011 Nobel Prize in Physics to the teams' leaders and the 2015 Breakthrough Prize in Fundamental Physics to all team members. A dedicated and enthusiastic teacher, he has won the campus Distinguished Teaching Award and has been voted "Best Professor" a record 9 times in the Daily Cal's annual "Best of Berkeley" survey. He was also named the 2006 CASE/Carnegie National Professor of the Year among doctoral and research institutions. Besides being an avid tennis player, skier, and hiker, he enjoys world travel and loves to experience total solar eclipses throughout the globe (17, so far).

Faculty web site: http://astro.berkeley.edu/people/faculty/filippenko.html

Economics 84, Section 1
Buddhist Economics (2 units, P/NP)
Professor Clair Brown
Monday 3:00-5:00, 2 Evans Hall, Class number: 19469

In Buddhist Economics, we will explore how the assumptions of interdependence, impermanence, and altruism are the foundation for an economy that cares for all people and the planet. This "Buddhist economy" is compared to a "Free Market economy." Some questions that we address are these: What creates happiness? What is an equitable distribution of income? How is our own well-being related to the well-being of other people and the planet? How should we measure the performance of economic growth? Many students in my Econ 1 class at UC Berkeley were frustrated with the assumption that “more is better”---having more income and what it buys is what makes people better off. They also were shocked that GDP growth does not include the income distribution across the population. In the Free Market model, the rich
benefit just as much as the poor from another dollar of income, and income per capita compares quality of life across countries. In the competitive Free Market economic model, it makes sense to go shopping if you are feeling pain, because buying things makes you feel better. Yet we know from experience and from neuroscience that consuming more does not relieve suffering. What if we lived in a society that did not put consumption at its center? What if we follow instead the Buddhist worldview that people are interdependent with each other and the planet, and are driven by compassion rather than desire? Most of the required reading is from my book, Buddhist Economics: An Enlightened Approach to the Dismal Science, Bloomsbury Press, 2017. In this seminar, students will work in teams to write op-eds or blogs on specific questions, and publish them online (Medium, Axios, and others). Join in the exploration!

Clair Brown has published research on many aspects of the labor market, including high-tech workers, labor market institutions, firm employment systems and performance, the standard of living, wage determination, and unemployment. Clair taught Econ 1 for many years, and practices Tibetan Buddhism. Her books include American Standards of Living, 1919-1988 (Blackwell, 1994), Work and Pay in the United States and Japan (Oxford University Press, 1997), Economic Turbulence (University of Chicago Press, 2006), and Chips and Change: How Crisis Reshapes the Semiconductor Industry (MIT Press, 2009, 2011). Clair with her grad student Eli a holistic measurement for economic performance for California. She is also a faculty leader in the Development Engineering program for graduate students.

Faculty web site: http://www.irle.berkeley.edu/faculty/brown/Brown_CV.pdf

**Electrical Engineering 84, Section 1**  
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: 30560

**Meets the first half of the semester, beginning January 21, 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**  
Film Noir and Neo-Noir (2 units, P/NP)  
Professor Julia Bader  
Tuesday 9:00-12:00, 300 Wheeler Hall, Class number: 32610

A course analyzing classic American crime films and recent examples of the genre.
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

**History 84, Section 1**  
**Algorithmic life: the social impact of automation (1 unit, P/NP)**  
**Professor Massimo Mazzotti**  
Monday 5:00-6:00, 470 Stephens Hall, Class number: 24313

Our life is increasingly shaped by digital infrastructures and automated processes. What are the broader implications of this phenomenon, both at the personal and the collective level? What is driving this apparently inescapable technological trajectory?

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**  
**Natural History of Berkeley (1 unit, P/NP)**  
**Lecturer Alan Shabel**  
Thursday 2:00-3:00, 2063 VLSB, Class number: 23277

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 a series of local field trips with a study of museum specimens and short lectures. There will be no exams or homework assignments. In Spring 2019 we will give special attention to the role of fire in East Bay ecosystems. The course is open to freshmen and sophomores.

**Professor Alan Shabel is a specialist on mammals with a primary focus on African otters, but his interests range across ecological levels of organization, and he is fascinated by the natural history of California and Berkeley.**