Class of 2021,

Welcome to the Freshman Seminar Program, one of Harvard College’s finest jewels.

Since its inception in 1959, our program has provided Harvard freshmen with delightful learning communities in which they work closely with faculty and peers on a topic of mutual interest.

The pages in this booklet describe in alphabetical order the 142 Freshman Seminars that will be offered in 2017–2018. As you will see, the range of seminars is spectacular: They offer you an exceptional introduction to every corner of the University, and they are taught by some of Harvard’s most distinguished faculty members. There is probably no finer way to explore new interests—or expand on existing passions—than by enrolling in a freshman seminar.

As the name suggests, you may only take freshman seminars during your freshman year, and, during that year, you may enroll in up to two seminars, one in each term. Demand for many of our seminars is very high. To maximize placement chances, we strongly recommend that you cast your net widely and apply to at least seven seminars that pique your curiosity.

As you embark on your journey through the College’s liberal arts curriculum, we urge you to take full advantage of the extraordinary opportunity presented by our freshman seminars. We promise you that it will be one of the highlights of your first-year experience.

Ofrit Liviatan
Director, Freshman Seminar Program
WHAT DO STUDENTS THINK?

My freshman seminar has allowed me to feel welcomed into the Harvard community; it has shown me the great things I have to look forward to and has stimulated my intellectual growth.

LOVED IT! Taking a freshman seminar was the greatest thing I did this year. It was fascinating, educating, thought-provoking, de-stressful, and fun. My seminar was like a family. It was truly a highlight of my freshman year.

This is the quintessential freshman seminar class: It is taught by an outstanding professor in the field who is ridiculously passionate about the topic, in addition to being remarkably caring about each and every one of his students. The workload is manageable and engaging, and class trips are a ton of fun and give you the opportunity to explore resources on campus that you may not encounter otherwise.

The Freshman Seminar Program is amazingly unique, and I really appreciate the opportunity to look into something I wouldn’t have thought to study.
The freshman seminar experience is, by far, the most valuable group time I've had with a professor here at Harvard. I would never have had the chance to get such an early head-start on my concentration focus if my seminar didn't point me in the right direction.

Applying for this seminar was my best decision I've made since I came to Harvard. Don't worry if you're not experienced—this class is meant for students with all levels of experience, and you will catch up soon.

I loved the [SAT/UNS] grading of the freshman seminar because I felt it freed up my class to take risks with our thinking. I feel like I worked harder for this class than all my others and produced my best quality work. This fosters learning for learning's sake.

This class exemplified, for me, what I wanted my Harvard experience to be like: I worked closely with my peers and a leading professor to work through and think about important questions that have real-life implications. I think this will be one of the best courses I take at the university. I've taken two freshman seminars, and both were outstanding. It has been lovely to get to know high-profile professors who are so passionate about their fields.
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Seminar students working on their VOTE GPS.com website (Nina L. Duncan-FSP)
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Ofrit Liviatan (Alessandro Vaccaro)

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Charles Alcock’s seminar at the Clay telescope (courtesy of C. Alcock)
Stem cell and regenerative biology seminar in the lab (Nina L. Duncan-FSP)
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CREDIT
Freshman seminars are offered for credit and are normally taken as part of the regular program of four courses in each term of the year. Any student who enters Harvard as a freshman may apply to any freshman seminar during the first two terms of residence. A student may enroll in only one freshman seminar in a term, though it is possible to take one in each term if space is available. Seminars are not letter-graded: A student's work in the seminar is evaluated as “Satisfactory” or “Unsatisfactory.” Students who neglect the work of the seminar or who do not perform satisfactorily will be excluded from the seminar and/or denied credit. Seminar instructors report in writing on each student’s performance in a seminar; these reports are available to the student through established procedures.

All seminars count toward degree credit. Some seminars may be counted toward concentration requirements or regarded as “related” courses in a field of concentration; this decision is made by the department or the committee of the concentration.

APPLICATION AND ADMISSION
Applications to the Freshman Seminar Program may be submitted electronically through a Web-based system starting on Wednesday, August 2, 2017. Information about applying to fall-term seminars is available on the Freshman Seminar website (www.freshmanseminars.college.harvard.edu) or from the Freshman Seminar Office (617-495-1523). Applications will be accepted until 8:00 am on Friday, August 25, 2017, and students will be notified of their placement on Monday, August 28, 2017. Applications for spring-term seminars may be submitted starting in December.

We urge students to apply to as many seminars as are of interest. Since applications to many seminars exceed the number of available slots, students are encouraged to apply to at least seven seminars in order to maximize chances of being placed in a seminar of choice. Admission to a seminar is determined by the instructor. Some seminar leaders set no prerequisites other than interest in the subject; other seminars, because of their specialized nature, require particular qualifications or appropriate academic background.
COURSE REGISTRATION IN MY.HARVARD

Please consult our website, www.freshmanseminars.college.harvard.edu, for up-to-date information on pertinent deadlines. All applicants are advised to plan a full program, to arrange sectioning, and to proceed as though they were not going to be accepted into a seminar. It is easier to drop out of a regular course after being notified of one’s acceptance into a seminar than it is to join a regular course one week late if one is not placed in a seminar. You will be notified of your seminar placement before the course registration deadline and your placement will be added to your Crimson Cart in My.Harvard by the Registrar’s Office. If you add or change your seminar after this initial placement, you will need to add the seminar to your Crimson Cart and send a request to the instructor in My.Harvard for permission to enroll.

For further information, please contact the Freshman Seminar Office:
6 Prescott Street, Harvard University, Cambridge, MA 02138
Email: seminars@fas.harvard.edu
Telephone: 617-495-1523
Website: www.freshmanseminars.college.harvard.edu

Students should check the Freshman Seminar Program website, the Yard Bulletin, and dormitory bulletin boards at the beginning of each term for additions and deletions to the Freshman Seminar Program.

PLEASE NOTE: The most up-to-date list of courses and meeting times can be viewed on our website at www.freshmanseminars.college.harvard.edu.
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SEMINARS

ALL OF PHYSICS IN 13 DAYS
John M. Doyle (Department of Physics)

FRESHMAN SEMINAR 23Y 4 credits (fall term) Enrollment: Limited to 10

Prerequisite: Please note that this seminar will be geared to students likely to go on in physics or related areas, such as chemistry/physics or engineering. The introduction to certain principles is done with the expectation that students will return to a more formal course on the subject in the future. This seminar acts as a kind of road map for further studies in physics. Topics may change.

Some claim that there are 13 ideas or principles that can form the bedrock for a pretty good understanding of our physical and technological world. These are: 1) Boltzmann factor and thermal equilibrium; 2) Turbulence; 3) Reaction rates; 4) Indistinguishable particles; 5) Quantum waves; 6) Linearity; 7) Entropy and information; 8) Discharges, ionization; 9) Relativity; 10) Nuclear binding energies; 11) Photon modes; 12) Diffraction; and 13) Resonance. Each week we will review one of these principles and see how they explain certain things about the physical world. We will discuss these and connections with other principles, as well as how the principle shows up in technology and, more broadly, in our technological society.

ALTRUISM AND AGGRESSION, LOVE AND WAR: BIOLOGY OF SOCIAL BEHAVIORS
Mark C. Fishman (Department of Stem Cell and Regenerative Biology)

FRESHMAN SEMINAR 50T 4 credits (fall term) Enrollment: Limited to 12

Geese migrate, and sticklebacks school. Termites build air-conditioned castles, and bees, geometrically precise hives. What properties of the individual allow emergence of such ornate and coordinated activities from the group? Which elements are innate, and which are learned during development? And do these “primitive” social behaviors speak to how humans behave, in groups or one-on-one? Are there specific genes that control social behavior throughout evolution, and, if so, are they conserved in humans and responsible for altruism, aggression, love, and loneliness? Does their perturbation give rise to disorders such as autism or schizophrenia? This seminar will explore such questions of social behavior, beginning with an appreciation for the variety of approaches that have found success in evolution. We will discuss, and visit labs, using new scientific tools that permit dissection of complex social interactions into underlying motifs exhibited by individuals, in order to find how these are controlled by specific genes and what brain circuits are responsible. We will discuss both classical and new discoveries. Expectations are class participation and writing one paper (maximum 15 pages) and leading a brief (10-minute) class discussion on one specific social behavior in an animal, with musings on how it might apply to humans.
AMATEUR ATHLETICS
Harry R. Lewis (Harvard John A. Paulson School of Engineering & Applied Sciences)

Freshman Seminar 49Y  4 credits (spring term)  Enrollment: Limited to 12

This seminar is a study of sports as a lens through which to explore social and ethical paradoxes of American life. Where did the amateur ideal come from, and does it make sense today? It includes the history of athletics in ancient Greece, Victorian England, and America, and in college, Olympic, and professional athletics. It will review athletic competition as a social, spiritual, educational, and commercial institution. We will also discuss the relation to the amateur ideal of recent trends in higher education, including democratization, internationalization, and rising cost. Requirements: Presentations in class based on weekly reading and current events, and a 10-page research paper due at the end of the seminar, with a draft due earlier. The research project will be on a topic of the student’s choosing related to the history and development of college sports. Students will learn to use the Harvard Archives, where in past years, students in this seminar have uncovered fascinating, untold stories about Harvard’s place in sports history.

THE AMAZING BRAIN
John E. Dowling (Department of Molecular and Cellular Biology & Harvard Medical School)

Freshman Seminar 22M  4 credits (spring term)  Enrollment: Limited to 15

Prerequisite: High school science

Note: I especially invite those students who are not planning to concentrate in neurobiology or a natural science to join the seminar.

Clinical cases have told us much about human brain function. This seminar will examine some of the famous neurological cases and what we have learned from them, and it will explore brain mechanisms. Included will be Broca’s patient “Tan,” whose case led to the identification of one of the brain’s language areas; Phineas Gage, whose injury to a specific brain region changed his personality dramatically; and patient HM, who, after brain surgery, no longer could remember things for more than a few minutes. We will expand on the cases by reading from my book Creating Mind: How the Brain Works, which is an introduction to brain and mind mechanisms in language accessible to anyone who has had elementary high school science. Many of the chapters describe other medical cases, not as well known as the classic cases described above, but instructive nevertheless.

As a freshman, you’re mostly taking courses that occur in lecture halls, but a seminar is usually capped at 12 people. It’s a close-knit community and you feel very comfortable sharing your thoughts in very dynamic discussion and you also get to know your professor.

— A FRESHMAN SEMINAR Student
THE AMERICAN DEATH PENALTY: MORALITY, LAW, AND POLITICS
Carol S. Steiker (Harvard Law School)

Freshman Seminar 41E 4 credits (fall term)  Enrollment: Limited to 14

This seminar will address the controversies that swirl around the American death penalty in the distinct, but related, contexts of morality, law, and politics. At the level of moral theory, we will consider whether the death penalty is ever justified as a state practice, both in the abstract and in application, given concerns about its fairness and efficacy in deterring crime. We will explore the US Supreme Court’s “constitutionalization” of capital punishment, starting with its landmark decision in 1972 in the case of Furman v. Georgia. We will trace the Court’s attempt to deal with issues of fair process, proportionality, cruelty, reliability, and racial discrimination. Close readings of key opinions will show how the Court’s interpretations of the majestic generalities of the Constitution—the guarantees of “due process,” “equal protection,” and protection from “cruel and unusual punishments”—have been informed by moral theory. Finally, we will consider the American death penalty in political context, both nationally and internationally. We will assess explanations for the anomaly of American retention of capital punishment, alone among Western democracies. We will consider how moral philosophy and legal regulation have affected the course of the American death penalty in the political sphere and contemplate the legal and political future of the institution. Will (or can) the death penalty be reformed? What are the prospects for nationwide abolition (or large-scale resurgence)? Will (or should) the death penalty’s future lie in the hands of the courts or the political branches of government?

AMERICAN PRESIDENTIAL CAMPAIGNS AND ELECTIONS 1960–2016
Maxine Isaacs (Department of Government)

Freshman Seminar 41P 4 credits (fall term)  Enrollment: Limited to 15

For two hours each week, students will work to understand the history, forces, and politics of American presidential campaigns and elections. Each student will be “responsible” for one presidential election between 1960 and 2016, and, together, members of the seminar will develop some perspective on dramatic changes, as well as enduring factors that have shaped our own times, issues, and society. With the help of some guests—practitioners including political leaders, public opinion analysts, and journalists—students will develop a deeper understanding of contemporary politics; the impact of demographic patterns and changes; public opinion and polling; and political communication. Students will learn about the relationship among politics, news, and public opinion, and who influences whom. Participants will be introduced to excellent contemporary studies about modern presidential campaigns and elections. At the end of the term, students will make oral reports to the class on lessons learned from a past election that can help all of us better understand this one.
AMERICA’S $3 TRILLION CHALLENGE: HEALTH CARE ACCESS AND PRODUCTIVITY IN THE HEALTH REFORM ERA
Alan M. Garber (Department of Economics [FAS], Harvard Medical School, Harvard Kennedy School, and Harvard School of Public Health)

Freshman Seminar 40K 4 credits (spring term) Enrollment: Limited to 15

**Prerequisite:** Background in microeconomics at the level of first-semester Economics 10 is required. Knowledge of AP-level statistics is desirable. The seminar is relevant to anyone with an interest in applied economics, public policy, health care, or public health.

“Why does health care cost so much?” Policymakers, employers, and the public share deep frustration at high health expenditures, which are blamed for rising federal deficits, the declining competitiveness of US businesses, and the risk of financial ruin for individuals unfortunate enough to suffer a costly illness or injury. Unless health expenditures can be controlled, universal access to care is likely to remain an unattainable goal in the United States. In this seminar, we will explore the causes and consequences of the high costs of care and the range of approaches to increasing the productivity of health care. The Affordable Care Act and alternative health reform options will be critically examined for their effects on health care productivity. Students will be exposed to techniques for measuring the effectiveness and value of health care, and will become familiar with economic and clinical studies. Students will be asked to produce a midterm outline and final paper on solutions for improving health care productivity in the US.

ANATOMY AND ETHICAL TRANSGRESSIONS IN NATIONAL SOCIALISM
Sabine Hildebrandt (Harvard Medical School)

Freshman Seminar 23H 4 credits (fall term) Enrollment: Limited to 12

This seminar introduces students to the history and ethics of anatomy, and their relevance for current questions in medicine concerning the human body in life and death. The story of anatomy in National Socialist (NS or Nazi) Germany is an example of ethical transgressions in the anatomical sciences and reveals the complex relationship between anatomists and the Nazi regime. The historic causes of this development will be explored by examining the roots of the biologic NS ideology in the connections between anatomy, physical anthropology, the global eugenics movement, and German racial hygiene. Many anatomists became members of the NS party, while others were persecuted for so-called “racial” and political reasons. An examination of the history of anatomical body procurement, from ancient Greece to the 21st-century, demonstrates the changes of the traditional sources of bodies for anatomical dissection under NS rule, resulting in the use of many bodies of NS victims for anatomical purposes. Anatomical research changed with the exploitation of the rising number of bodies of executed men and women. Case studies of the work of individual anatomists reveal a gradual shift in the paradigm of anatomy. A few anatomists left the traditional paradigm—i.e., the gain of anatomical knowledge through work with the dead—in favor of a new paradigm—i.e., work with the “future dead”—in human experiments on prisoners who were subsequently murdered. Ultimately, anatomists became complicit with the government through their role in the complete destruction of the perceived “enemies” of the NS regime.
ARISTOTLE’S HEIRS: GREEK AND ROMAN CULTURE IN CHRISTIANITY AND ISLAM

Julian J. T. Yolles (Department of the Classics)

Freshman Seminar 61Y 4 credits (spring term) Enrollment: Limited to 12

Note: All readings are in translation. The seminar will include required visits to the Harvard Art Museums and to Houghton Library.

Who owns the Greeks and Romans? For centuries, civilizations in regions as diverse as Iraq and Iberia, northern Europe and North Africa, have laid claim to the cultural and intellectual heritage of Ancient Greece and Rome. Christians and Muslims in Baghdad, Palermo, and Toledo translated philosophical, scientific, and literary works into Arabic and Latin. Why did they devote so much time and money to studying and teaching Plato, Aristotle, and Vergil? This freshman seminar follows the story of how ancient Greek and Roman thought was transmitted and transformed in the Christian and Muslim intellectual traditions. Students will read seminal works by Plato, Augustine, al-Farabi, and Dante and engage critically with modern depictions of the recovery of ancient thought in literature (Borges) and film (The Name of the Rose).

THE ART AND CRAFT OF ACTING

Remo Airaldi (Committee on Theater, Dance & Media)

Freshman Seminar 35N 4 credits (fall term) Enrollment: Limited to 12

Note: Students will be required to attend theater performances during the course of the term. There will be no charge to the student.

We’ve all watched a great performance and wondered, “How did that actor do that?” Acting is undoubtedly the most popular, most widely experienced of the performing arts and, yet, in many ways, it remains a mystery. This seminar will give students an opportunity to demystify the art of acting by introducing them to the basic tools of the trade; they will learn about the craft of acting by actually “doing” it. It will provide an introduction to acting by combining elements of a discussion seminar with exercises, improvisations, and performance activities. Improvisation will be used to improve group/ensemble dynamics, to minimize habitual behaviors, and to develop characters. Students will explore a range of acting techniques designed to give students greater access to their creativity, imagination, and emotional life. The aim will be to improve skills that are essential to the acting process, like concentration, focus, relaxation, observation, listening, and so on. In the later part of the term, students will work on monologues. Students will also attend and critique productions at the Loeb Drama Center and other theaters in the Boston area.

[It’s] the idea of being able to take an intellectual risk, dive into something that you may have only a passing curiosity about but perhaps discovering something that you really enjoy!

— A FRESHMAN SEMINAR STUDENT
THE ART OF STORYTELLING
Deborah D. Foster (Committee on Theater, Dance & Media and Committee on Degrees in Folklore and Mythology)

Freshman Seminar 32V 4 credits (spring term)  Enrollment: Limited to 12

Throughout the centuries and across all continents, men and women have told stories to express the values they find in their common experiences of everyday life. While the multiple storytelling traditions of the teller influence the content and form of the emergent tale, each narrator shapes the story to reflect his or her own intentions, making it personally expressive as well as publicly meaningful to a particular audience in a specific place and time. Drawing on scholarship of oral storytelling traditions and reading (in translation) myths, tales, legends, plays, and other forms from several traditions, this seminar will examine the nature of storytelling, its enduring appeal, and its ability to adapt to multiple new platforms (stage, print, film, Internet). Participants will engage in the storytelling process, itself, in order to understand better the interrelationship of structure, plot, character, imagery, rhythm, voice, and gesture to the story as a whole in a variety of media, ranging from mime to video.

THE ART, SCIENCE AND TECHNOLOGY OF GLASS
David R. Clarke (Harvard John A. Paulson School of Engineering & Applied Sciences)

Freshman Seminar 50C 4 credits (fall term)  Enrollment: Limited to 12

Glass is ubiquitous in our daily lives, so it may be easy to forget what a remarkable material it is. It allows the passage of light and yet sequesters heat. Able to be colored and shaped, glass has been used for millennia as an aesthetic medium, whether in jewelry, stained glass windows, such as in Memorial Hall, and in the modern glass sculpture of artists, such as Dale Chihuly. Glass has transformed the way we can view the world, through microscopes, telescopes, or eyeglasses. Glass formed into fibers serves as the basis for modern telecommunications, and glass can play a role in solar energy engineering. At a larger scale, glass is now also a substance for architectural expression. Glass is a material for all ages and all seasons, a material that can be plastic as well as brittle, a material that can be manufactured at the nanoscale and yet cast in sheets. Using a combination of readings, experimental exploration, and discovery, students will have the opportunity to learn why glass is so unusual and how it has profoundly changed society in many ways. The basis for many of its unusual properties, as well as its ability to be formed into complex shapes, will be illustrated by experimenting on the origins of color, the dichotomy between its plasticity and brittleness, its optical properties, as well as its crystallization behavior. Many of these experiments also illustrate some of the essential elements of modern materials science and engineering. Each class will include readings describing the historical, artistic, or scientific basis for the individual topics. Students will also undertake a research project culminating in a final, preferably video, presentation.
ARTIFICIAL AND NATURAL INTELLIGENCE
Venkatesh N. Murthy (Department of Molecular and Cellular Biology)

Freshman Seminar 50F 4 credits (spring term) Enrollment: Limited to 12

Recommended Preparation: This seminar targets students who are interested in brains and computers in equal measure, and are comfortable with analytical thinking. Some basic programming skills in Python, Matlab, or the equivalent is required to complete assignments—you will receive help with a remedial programming boot camp in the first two weeks.

What is intelligence? An inquiry into the nature of intelligence can take different forms—philosophical, biological, mathematical, or technological. In this freshman seminar, we will use machine intelligence (everything from voice recognizing smartphones to Jeopardy-playing computers) as a handle to think about natural intelligence (brains and behavior of animals). Although we will start with big, general questions, we will quickly move to concrete queries about brains and computers. This approach, rather than just starting with brains of animals, may be useful in framing more universal questions independent of the specific architecture of brains of animals.

ASIAN AMERICA
Diana L. Eck (Department of South Asian Studies and Committee on the Study of Religion)

Freshman Seminar 70Y 4 credits (spring term) Enrollment: Limited to 12

Note: There will be several required field trips—visits to the Sri Lakshmi Hindu Temple and the Raynham Thai Temple, an optional Tea Ceremony at the Tea House of the Harvard-Radcliffe Chado Society, the Ramakrishna Vedanta Society, and the Medford Gurdwara.

How “Asian” is America today? This seminar explores the Asian dimensions of American history, immigration, religion, and culture—from the first encounters of Thoreau and Emerson with texts and ideas of the “Orient” to the saturation of modern America with the holistic cultures of yoga, tai chi, and mind-body medicine. We will also look at the Asian communities from India, China, Korea, and Japan that brought new forms of religious and cultural life to the US in the 20th-century.
ASTEROIDS AND COMETS
Charles R. Alcock (Department of Astronomy)

Freshman Seminar 23R  4 credits (spring term)  Enrollment: Limited to 12

Note: The seminar will make use of the Clay Telescope on the roof of the Science Center. There may also be a trip to the Observatory at 60 Garden Street to visit the Great Refractor.

Comets have been seen regularly since before the beginning of recorded history. They have often been regarded as disturbing portents. Asteroids, on the other hand, were not discovered until the 19th-century, with the advent of astronomy with telescopes. Today, we know of many more asteroids than comets, but we believe that there are vastly more comets than asteroids in the solar system. This seminar will start with the history of the study of comets and asteroids, including the “Great March Comet of 1843,” observations of which led to the establishment of the Harvard College Observatory and its Great Refractor—at that time, the largest telescope in the Americas. Our understanding of comets advanced dramatically in 1950 with the publication of two extraordinary papers: Whipple (then at Harvard) described the mixture of dust and ice that make up the nuclei of comets, and Oort (Leiden University) showed that new comets enter the inner solar system from a vast, diffuse cloud surrounding the planetary system. Modern telescopes and spacecraft encounters provide us today with a wealth of information about comets and asteroids. We will examine these observations and learn what is known and what is inferred about the origin and structure of asteroids and comets. The students will observe with the Astronomy Laboratory’s Clay Telescope on the roof of the Science Center. Students will take on projects, which may involve their own observing program, or which exploit existing data.

BARGAINING WITH THE DEVIL: THE FAUST LEGEND IN EUROPEAN CULTURE AND THOUGHT
John T. Hamilton (Department of Comparative Literature and of Germanic Languages and Literatures)

Freshman Seminar 32F 4 credits (fall term)  Enrollment: Limited to 12

Note: All readings are available in English

Seduction and transgression, forbidden knowledge and the insatiable lust for learning, the limits of cognition, human will, and the problem of evil – these are the central themes that circulate around the legend of Faust, who is said to have exchanged his immortal soul for infinite wisdom and power. The seminar examines the elaboration and complication of this legend across the centuries and its formative role in the development of European literature and philosophy. Analyses of Christopher Marlowe’s Tragical History of Doctor Faustus, Goethe’s Faust, and Thomas Mann’s Doktor Faustus are complemented by discussions of early modern alchemical texts, Gounod’s Faust opera, Liszt’s Faust Symphony, Wagner’s Faust Overture, and Valéry’s Mon Faust, all with reference to shifting historical contexts and philosophical reflections.
BASEBALL AS PHILOSOPHY: GOD, BEAUTY, AND MORALITY
Jeffrey Behrends (Department of Philosophy)

Freshman Seminar 61S  4 credits (fall term)  Enrollment: Limited to 12

Even seemingly commonplace features of the world offer us a route to inquiring into complex ideas and phenomena. You can think of this seminar, in part, as a sort of existence proof of that claim. Using baseball as a focusing lens, we will endeavor to cover a fairly large swath of philosophical terrain, including a more focused investigation of issues in ethics. We will consider, among other things, how baseball can help us understand God’s relationship to morality; why a loving God would allow evil; indeterminate concepts; what makes something beautiful or aesthetically valuable; social justice and income distributions; the moral permissibility of violating rules within a game; and the moral permissibility of biomedical enhancements to humans. Our investigation will put us in close contact with both contemporary scholarly writing on baseball and canonical philosophical thinkers, starting with Plato. In addition to being the greatest game ever created, baseball offers surprisingly fertile ground for thinking about some of the deepest issues across philosophy.

BEACHHEAD FOR RADICALISM OR BASTION OF THE ELITE ESTABLISHMENT? POLITICS AND THE HISTORY OF AMERICAN HIGHER EDUCATION
Julie A. Reuben (Harvard Graduate School of Education)

Freshman Seminar 70R  4 credits (fall term)  Enrollment: Limited to 15

When colleges and universities are in the news, it’s often related to politics. Headlines feature students who shout down controversial speakers, professors who only present liberal ideas in their classrooms, or universities that fire professors whose tweets anger donors. The public is interested in these stories because the stakes are high. Colleges and universities teach the people who are going to be the next generation of leaders. What if those people are indoctrinated with bad ideas or are not taught how to behave in democracy? Faculty members are the country’s experts. What if they do not provide reliable information? As experts, should their views count more than those of average citizens? Colleges and universities are supported with tax dollars, private donations, and tuition payments. To whom are they accountable? Higher education is inextricably linked to politics, but we do not have consensus about key questions, such as: Should colleges and universities take positions on political issues? Can faculty advocate for political causes in their scholarship, public appearances, and classrooms? Do students have political rights? This seminar will explore how these questions have been debated and resolved over time. We will examine three periods in which national crises raised these questions with particular urgency: the 1830s–1850s (slavery and anti-slavery); the 1910s (World War I); and the 1960s (the Vietnam War, racial equality, student’s rights). These historical cases will help us think more clearly about the present, another period of political strife affecting American higher education.
BEAUTY AND CHRISTIANITY  
Robert J. Kiely (Department of English)  

Freshman Seminar 31N  4 credits (fall term)  
Enrollment: Limited to 12

In Book X of The Confessions, Augustine wrote, “I have learned to love you late, Beauty at once so ancient and so new!” In addressing God as source and model of beauty, Augustine joins theology and aesthetics in one sentiment that has informed, and sometimes troubled, Christianity throughout its history. There is no doubt that the life and teachings of Jesus have inspired some of the greatest works of art, literature, and music in Western culture, but it is also true that Christians have not always agreed on the definition and function of beauty. The seminar will consider certain key Christian aesthetic theories, including those of Augustine, Gregory the Great, Aquinas, and Calvin. But the focus will be on the analysis of particular works, selections from Dante’s Paradiso, poems of Herbert, Donne, and G.M. Hopkins, The Little Flowers of St. Francis, Bunyan’s Pilgrim’s Progress, Hawthorne’s The Scarlet Letter, Melville’s Billy Budd, works of C.S. Lewis, and the short stories of Flannery O’Connor. Included as well will be paintings (e.g., Italian Renaissance depictions of Jesus, Mary, Mary Magdalene, John the Baptist, and St. Sebastian) and choral music (e.g., Bach’s Saint Mathew Passion and selected African American spirituals). The abiding question will be: In what ways does aesthetic form—beauty—enhance, qualify, complicate, or obscure the gospel?

BEETHOVEN’S STRING QUARTETS  
Anne C. Shreffler (Department of Music)  

Freshman Seminar 38T  4 credits (fall term)  
Enrollment: Limited to 12

Prerequisite: Participants should be able to read music (at least treble and bass clef).

Note: The seminar includes required attendance at one live performance outside of the regular class time.

Since the late 18th-century, composers have often reserved their most ambitious and complex thoughts for their string quartets. The ensemble of two violins, viola, and cello can create a homogeneous sound but also has an enormous potential for sonic variety. Beethoven’s 16 quartets span almost his entire creative output, ranging from the classical Six Quartets, Op. 18 of 1800 to the transcendent, pioneering late quartets, the last completed in 1826, the year before his death in 1827. These works contain the full range of Beethoven’s musical expression. The seminar will work from scores, selected recordings, and live performances connected to the Parker Quartet’s Harvard residency. Seminar members will play excerpts from the quartets in class. Everyone will prepare individual projects. We will also go on a field trip to hear a professional string quartet. Although the primary focus will be on the participants’ interpretations of the works, the seminar will also read and discuss texts by Lewis Lockwood, Joseph Kerman, Robert Winter, and others. Our goals are to get to know one of the great collections of works in Western music; and to improve listening and score-reading skills; to learn to talk about and write about music.
BIO-INSPIRATION AND INNOVATION
Joanna Aizenberg (Harvard John A. Paulson School of Engineering & Applied Sciences and Department of Chemistry & Chemical Biology)

Freshman Seminar 50U  4 credits (fall term)   Enrollment: Limited to 12

Note: Background in natural sciences is preferred, but not required; students in social sciences and humanities are welcome; just be bio-inspired!

In the course of evolution, Nature has developed strategies that endow biological processes and materials with exquisite selectivity, specificity, and adaptability to a constantly changing environment. Learning from and mastering Nature's concepts not only satisfies humankind's insatiable curiosity for understanding the world around us, but also promises to drive a paradigm shift in modern materials science and technology. This seminar will explore some of the basic principles of biological architectures and the economy with which biology solves complex problems in the design of novel materials. It will give us a taste of how the inspiration from nature teaches us to break barriers in technology and disruptively innovate. Often nature's solutions to engineering problems are so different from our conventional ways of thinking that the most fruitful way to investigate them is not immediately obvious. We will be, therefore, engaged in a continuous dialogue: We study the biological material, itself, to begin to understand its underlying principles, adapt these concepts to design a bio-inspired architecture, and then apply insights from the designed system to guide further investigation of the biological system. The goal is to use biological principles as guidance in developing new, bio-inspired materials and devices, with broad implications in fields ranging from architecture to energy efficiency to medicine.
BIOLOGY OF SYMBIOSIS: LIVING TOGETHER CAN BE FUN
Colleen M. Cavanaugh (Department of Organismic and Evolutionary Biology)

Freshman Seminar 24Q  4 credits (fall term)  Enrollment: Limited to 12

Note: The seminar will occasionally meet longer for required field trips or other projects.

This seminar examines the remarkable diversity of symbiotic associations on Earth, their ecology and evolution, and their roles in human health and disease, agriculture, and biotechnology. Symbioses—“living together”—with microbes are ubiquitous in nature, ranging from lichens to the human microbiome. Symbiosis drives evolution, resulting in “new organisms,” and charges us to think about biodiversity on a new level. They affect the ecologies of organisms, e.g., by allowing colonization of otherwise hostile environments, such as deep-sea hydrothermal vents. In agriculture and natural environments, symbioses “self-fertilize” plants in nitrogen-poor soils. In medicine, they impact understanding of emerging diseases, as pathogens are at one extreme of the symbiotic continuum. Knowledge of such partnerships is critical to understanding all life on Earth. Our own cells are host to intracellular symbionts, i.e., mitochondria, which evolved from free-living bacteria 1 billion to 2 billion years ago. Further, the Human Microbiome Project emphasizes that “we are not alone.” Humans harbor 10 times more bacteria than human cells, a consortium integral to host health and development. Indeed, recent studies reveal multiple benefits, ranging from protection against pathogens to development of the immune system. In this freshman seminar, microbial symbioses with animals, plants, fungi, and protists will be discussed, complemented by firsthand observations via microscopy and field trips to local environs, including Boston Harbor Islands, the New England Aquarium, and your own microbiome.

BLACK HOLES, STRING THEORY AND THE FUNDAMENTAL LAWS OF NATURE
Andrew E. Strominger (Department of Physics)

Freshman Seminar 21V  4 credits (spring term)  Enrollment: Limited to 12

Prerequisite: High school level calculus and physics.

The quest to understand the fundamental laws of nature has been ongoing for centuries. This seminar will assess the current status of this quest. In the first five weeks, we will cover the basic pillars of our understanding: Einstein’s theory of general relativity, quantum mechanics, and the Standard Model of particle physics. We will then examine the inadequacies and inconsistencies in our current picture, including, for example, the problem of quantum gravity, the lack of a unified theory of forces, Dirac’s large numbers problem, the cosmological constant problem, Hawking’s black hole information paradox, and the absence of a theory for the origin of the universe. Attempts to address these issues and move beyond our current understanding involve a network of intertwined investigations in string theory, M theory, inflation, and non-abelian gauge theories, and we have drawn inspiration from the study of black holes and developments in modern mathematics. These forays beyond the edge of our current knowledge will be reviewed and assessed. The format of the seminar will be discussion of weekly reading assignments and a final paper. Non-scientists are welcome.
A BRIEF HISTORY OF SURGERY
Frederick H. Millham (Harvard Medical School)

Freshman Seminar 24G 4 credits (fall term) Enrollment: Limited to 15

The history of surgery begins with the Hippocratic physicians, whose principles were based, at least partly, on observation and measurement. However, surgical thinking for first three quarters of the “modern era” was dominated by Galen of Pergamum, who, “fooled by his monkeys,” established a school thought as false as it was tightly held. The exposure of Galen’s errors by Vesalius in 1543 and Harvey in 1628 began a Medical Enlightenment. It would take until the 19th-century for the next era of discovery to begin. During this time, the pace and significance of medical discovery increase, yet adoption of good ideas, like antisepsis, seems to take much too long, while bad ideas find adherents in spite of poor or no supporting evidence. Throughout this period, the ghost of Galen continues to haunt hospitals and battlefields. It will not be until the 1930s that Galenism is banished from the wards. Our study will track this history and conclude with a consideration of the management of combat casualties from the time of the first “modern” surgeon, Ambrose Pare, to that of contemporary forward surgical teams in Afghanistan and Iraq. The seminar will consist of weekly discussion, informed by assigned reading and independent inquiry. We will visit the site of the first use of ether anesthesia, and duplicate William Harvey’s experiments in the anatomy lab. From time to time, we will be joined by other doctors with expertise in specific areas, such as infectious disease, combat surgery, and anatomy.

BROADWAY MUSICALS: HISTORY AND PERFORMANCE
Carol J. Oja (Department of Music)

Freshman Seminar 34V 4 credits (spring term) Enrollment: Limited to 12

Note: Student musicians and actors are welcome in the seminar, as are students who love to watch shows but not necessarily perform in them. Ability to read music is desirable but not required.

This seminar will explore a core group of Broadway musicals. Historical, musical, and theatrical discussions will be paired with student performances and staging of individual scenes (done under the guidance of Allegra Libonati from the A.R.T. Institute). The seminar will touch on signal moments over the course of the “Golden Age” of the musical, stretching up to the present day: Oklahoma! (1943), South Pacific (1949), West Side Story (1957), A Chorus Line (1975), Wicked (2003), and In the Heights (2008). The class will attend a performance of Stephen Sondheim’s A Little Night Music at Boston’s Huntington Theatre. Blending historical study and hands-on practice, this seminar aims to offer a wide range of perspectives on the interpretation and performance of Broadway musicals.
THE CALL OF BEAUTY
Elaine Scarry (Department of English)

Freshman Seminar 39N 4 credits (spring term)  Enrollment: Limited to 12

Across the centuries, philosophers, poets, scientists, and mathematicians have meditated on the nature and power of beauty. Some have said beauty calls on us to educate ourselves; others have said it is a call to repair the injuries of the world. Our readings will come from both men and women: Plato and Sappho in ancient Greece; Aquinas and Lady Murasaki in the medieval period; Rilke and Maya Lin today. We will study features associated with beauty, such as color (e.g., “The Lady and the Unicorn” tapestries depicting the five senses) and symmetry (e.g., Augustine’s De Musica; a book on symmetry by astrophysicist Mario Livio; and a recorded debate among physicists about math and beauty). Does the call of beauty change according to its location? Among the sites we will contemplate are the beauty of Earth (e.g., the writings of environmentalist Rachel Carson and the ephemeral sculptures of Andy Goldsworthy) and the beauty of faces (such as Homer on Helen, and Seamus Heaney on an unnamed soldier).

A CALL TO ADVENTURE: PHOTOGRAPHY AND AMERICAN NATIONAL PARKS
Sharon C. Harper (Department of Visual and Environmental Studies)

Freshman Seminar 6tZ 4 credits (spring term)  Enrollment: Limited to 12

Note: There will be required field trips and arrangements will be made for loaned cameras for those who do not own one.

Both photography and the American National Park system were conceived in the 19th-century and have grown up alongside each other. This studio photography class will look at the National Parks as sites of artistic production that have shaped our cultural imagination for the last 100 years. The purpose of this seminar is to familiarize you with the role of artistic inspiration in the formation of the park system and to critically analyze the ways in which geological, political, and social conditions give rise to modes of artistic production. The class will acquaint you with photographic strategies that have evolved alongside the parks—from 19th-century Geological Photographic Surveys of the West to upheaval in the 1970s that gave rise to New Topographics, New Social Documentary Photography, and ecological art—in order for you to shape your own photographic exploration of place. We will also explore the cache

My relationship with a faculty member which began in a freshman seminar, continued in an independent study, and concluded in her supervising my thesis.

— A FRESHMAN SEMINAR STUDENT
FRESHMAN SEMINAR PROGRAM

CAN CHEMISTRY SOLVE THE ANTIBIOTICS CRISIS?
Andrew G. Myers (Department of Chemistry and Chemical Biology)

Freshman Seminar 50W  4 credits (fall term)  Enrollment: Limited to 12

Note: Students are expected to have a good working knowledge of high school chemistry. A basic familiarity with chemical structures and their depictions is desirable, but not required. There will be required visits to two state-of-the-art research facilities currently focused on the discovery of new antibiotics.

The dearth of effective antibiotics for modern bacterial pathogens—and “superbugs” in particular—presents a crisis that has been likened to terrorism in its potential consequences to human society. The basis and context of the problem will be discussed in detail, with a special emphasis on the history of antibiotics discovery and development. We will explore the molecular properties of antibiotics, their bacterial targets, and the chemistry behind the inhibition and engagement of these targets.

The evolution of bacterial resistance mechanisms and strategies to overcome these through chemical innovations will be presented using specific case studies. We will focus on the role chemistry has played in the development of new antibiotics, the molecular evolutionary paths engineered by humans over decades to develop new, more effective drugs, and how modern chemistry might be used to discover and manufacture future medicines for the treatment of human infectious diseases.
**CARTOONS, FOLKLORE, AND MYTHOLOGY**
Joseph F. Nagy (Department of Celtic Languages and Literatures)

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<th>Freshman Seminar 61F</th>
<th>4 credits (fall term)</th>
<th>Enrollment: Limited to 12</th>
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The creators of cinematic (and later TV) animation have perennially turned to traditional oral and literary tales about fantastic heroes, villains, tricksters, and settings for their story material. In the world of the animated “short” and feature-length film, myths, epics, legends, and folktales could come to life in a highly stylized, kinetic, and visually arresting way. Cartooning created a pathway for traditional stories to live on in the consciousness of 20th-century viewers, and also for these old tales to be adapted to changing times. Hence, animation offers not only an influential modern commentary on the folklore and mythology of the past, but also a contemporary mythology of its own—deeply meaningful to adults and children, alike. In this freshman seminar, students are invited to take what might be considered mere entertainment very seriously, closely reading texts of traditional stories in tandem with critically viewing animation that draws its inspiration from those stories. For a final assignment, each student will be called upon to choose some animation (a short or a clip from a feature-length film) to share with the rest of the class, to provide some background for it, and to lead a discussion of the animation in light of what else we will have seen, learned, and said. While the instructor’s contribution to the seminar will primarily focus on animation from 1900 to 1960, students—when choosing which sample of animation to share—will be welcome to present later or contemporary examples of the cartooning art, including perhaps even their own.

**CHALLENGES TO THE INTERNATIONAL MONETARY AND FINANCIAL SYSTEM IN HISTORICAL PERSPECTIVE**
Kenneth S. Rogoff (Department of Economics)

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<th>Freshman Seminar 40X</th>
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Note: The seminar does not require any background in economics.

This seminar explores contemporary debates on the future of the international monetary and financial system drawing on both historical and recent experiences. Topics will include understanding the underpinning and aftermath of the Great Depression of the 1930s and the financial crisis of 2008, including the slow growth and impotency of monetary policy after both episodes.
CHILD HEALTH IN AMERICA
Judith S. Palfrey (Harvard T.H. Chan School of Public Health and Harvard Medical School) with Sean Palfrey

Freshman Seminar 24N 4 credits (fall term)  Enrollment: Limited to 12

How can American health care be improved for children? How a nation cares for its children's health is often considered a measure of its commitment to the general citizenry and to its future. The members of the seminar will review together the history of children's health and health care in the United States, exploring the impact of geography, environment, nutrition, clean water, as well as of the scientific discoveries of the late 19th and the early 20th centuries and the emergence of the high-technology care of the middle and late 20th-century. Then they will pose the question, “Does America provide children and youth the best possible health care available in the 21st-century?” To approach this question, students will analyze the current causes of illness, disability, and death among US children and youth and compare United States epidemiology with that of other developed and developing nations. Students will also explore how child health delivery is financed.

THE CITY OF TOMORROW: CONSTRUCTING AND INHABITING THE 21ST-CENTURY
Arthur I. Segel (Harvard Business School)

Freshman Seminar 70P 4 credits (spring term)  Enrollment: Limited to 12

Note: As part of this dual process of investigation and application, students will have the opportunity to meet with world-renowned architects, urban planners, and developers, while also taking excursions into Cambridge and Boston.

“We shape our buildings, and afterwards, our buildings shape us.” — Winston Churchill

The built environment has profound effects on both our daily lives and the human condition at large. It determines where and how we live, work, play, and dream. The built environment embodies concrete stances on a wide variety of material, spatial, and cultural issues within a society. The quality and availability of affordable housing, for instance, is not merely an economic concern, but also a value judgment about the obligations of a society to its citizens. Underlying the practical aspects of the built environment—can this be built?—are cultural and societal considerations. By examining these issues on a variety of scales, ranging from the single-family home to the megacity, this seminar investigates how the built environment is the fingerprint of societal values and how it can be a vehicle for both positive and negative change. This seminar weaves together the practical aspects and social factors that make up the built environment. Each week, students will take on the role of decision makers and engage with a wide variety of ethical, aesthetic, political, environmental, and social considerations. We will discuss how issues, such as climate change, rapid urbanization, resource scarcity, economic inequality, and geopolitical conflicts, affect us as both inhabitants and constructors of the built environment. At the end of the seminar,
students will bring together both ideological and practical considerations to design a new city from scratch, à la Sim City.

**CLASH OF TITANS, SEATS OF EMPIRE: THE AZTECS, TOLTECS, AND RACE OF GIANTS IN ANCIENT MEXICO**

*William L. Fash (Department of Anthropology)*

**Freshman Seminar 44J 4 credits (fall term) Enrollment: Limited to 15**

*Note: No background or previous experience on or in Mexico is required, only an open mind.*

The film Clash of the Titans was a British extravaganza dedicated to exploring the ancient Greeks’ concepts of the interactions between humans and their gods. In Ancient Mexico, the tale of Topiltzin Quetzalcoatl, Toltec Prince of Tula, is the best-known example of the intervention of rival gods in the affairs of kingdoms and empires, and serves as the point of departure for our seminar. Just as the Greeks countenanced sacrifices and political assassinations, in Ancient Mexico the three great empires practiced human sacrifice, and regicide, and engaged heavily in warfare, which was vital in their statecraft and economy. We will explore how these central components were explained and justified in their mythology, why reciprocity with the gods was so vital, and how and why each empire came to a violent end. We begin with the first-person description of the Aztec empire and its violent conquest, penned by a foot soldier in Hernán Cortés’s army, Bernal Díaz del Castillo. In the following weeks, we will explore the environmental basis, religious dimensions, and social and political development of civilization and cities at the three seats of the empire in ancient Mexico. We will make extensive use of Peabody Museum collections, archaeological studies, historical accounts, and recent films and other media to critically examine ancient practices and current perceptions of the Aztec empire (1428–1519 CE); its predecessor the legendary Toltec empire of Tula (850–1100 CE); and the foundational Teotihuacan empire (100–550 CE), known as “The City of the Gods” to people throughout the region. The Aztecs and Toltecs went to Teotihuacan on pilgrimage every 20 days, because the scale of that ancient city was so massive, the architecture so impressive, and the religious art and historical lore so compelling that the Aztecs had a legend that it was built in an earlier creation by a race of giants. Seminar participants will explore how the biases of the observer play a role in describing and explaining “the Other.” Students will analyze the ways in which religion and the quest for power fueled the genesis, expansion, and demise of all three empires. First-years in this seminar will also explore the ways in which the living descendants of the Aztecs are reviving their traditional culture and how the pre-Columbian civilizations are integral to the national identity of Mexico and Chicanos in this country vs. the way they are portrayed in Hollywood and US popular culture through films and other media in the US and Mexico.
## CLIMATE CHANGE ECONOMICS: ANALYSIS AND DECISIONS

**Martin L. Weitzman (Department of Economics)**

| Freshman Seminar 70E | 4 credits (spring term) | Enrollment: Limited to 12 |

**Prerequisite:** Economics 10A or equivalent.

Climate change is one of the most difficult problems facing humanity. A small sample of questions to be considered and answers attempted in this seminar include the following: How do we analyze and decide what to “do” about climate change? What are the basic “models” combining economics with climate science, what are these models telling us, and how do we choose among their varying messages? How are risk and uncertainty incorporated? How do we estimate future costs of carbon-light technologies? How do we quantify damages, including ecosystem damages? Who pays for what? Why are discounting and the choice of discount rate so critical to the analysis, and what discount rate should we use? What is the “social cost of carbon,” and how is it used? Which instruments (prices, quantities, standards, and so on) are available to control greenhouse gas emissions, and what are the strengths and weaknesses of each? What is “climate sensitivity,” and why is it, and the feedbacks it incorporates, so important? How should the possibility of catastrophic climate change be evaluated and incorporated? What are the costs and benefits of geoengineering the planet to counter global warming? Why has climate change been characterized as “the biggest international market failure of all time,” and how might the world resolve the associated free-rider problem?

## COMPARATIVE HISTORICAL MYTHOLOGY

**Michael E. J. Witzel (Department of South Asian Studies)**

| Freshman Seminar 36S | 4 credits (fall term) | Enrollment: Limited to 12 |

This seminar will deal with an innovative approach to comparative mythology, detailed in my 700-page book on the topic (OUP, Dec. 2012). Comparative mythology has been a well-trodden, but controversial, field since at least 1800. The proposed seminar will discuss the matter in a new way by incorporating an **historical** approach, which has so far been lacking. The two most prominent explanations for the widespread worldwide similarities in myths have been archetypes (C.G. Jung) and diffusion (L. Frobenius/H. Baumann). Both approaches are inadequate to explain these similarities. Approaching myths historically, and working backwards from our earliest written sources (Egypt, Mesopotamia, Levant, India, China, Maya, and so on), earlier stages in the development of mythologies can be detected through successive reconstructions. These are supported by the additional testimony of oral texts found across the globe. Further, recent developments in human population genetics—as well as in archaeology, anthropology, and comparative linguistics—sustain the proposed historical model, which ultimately, but rather tentatively, reaches back to the time of the “African Eve.” This seminar will investigate the ways myths have been compared in the past, the underlying assumptions about human spirituality and religion, as well as available scientific evidence for such models. The new historical and comparative proposal will be tested against this evidence. All of this offers a wide scope for students’ classroom intervention and individual research in a multitude of ancient and oral texts (in translations) from a variety of languages, as well as in the sciences.
**COMPLEXITY IN WORKS OF ART: ULYSSES AND HAMLET**

Philip J. Fisher (Department of English)

| Freshman Seminar 33X | 4 credits (fall term) | Enrollment: Limited to 12 |

Note: There will be interviews for selected applicants. The instructor will contact selected applicants by email to schedule the interview during Opening Days week.

Is the complexity, the imperfection, the difficulty of interpretation, the unresolved meaning found in certain great and lasting works of literary art a result of technical experimentation? Or is the source extreme complexity—psychological, metaphysical, or spiritual? Does it result from limits within language, or from language's fit to thought and perception? Do the inherited forms found in literature permit only certain variations within experience to reach lucidity? Is there a distinction in literature between what can be said and what can be read? The members of the seminar will investigate the limits literature faces in giving an account of mind, everyday experience, thought, memory, full character, and situation in time. The seminar will make use of a classic case of difficulty, Shakespeare’s *Hamlet*, and a modern work of unusual complexity and resistance to both interpretation and to simple comfortable reading, Joyce’s *Ulysses*. Reading in exhaustive depth these two works will suggest the range of meanings for terms like complexity, resistance, openness of meaning, and experimentation within form.

**CONSERVATISM AND ITS CRITICS**

Eric M. Nelson (Department of Government)

| Freshman Seminar 70U | 4 credits (fall term) | Enrollment: Limited to 12 |

What is conservatism? Is it merely a temperament or sensibility? Or is it a coherent approach to political theory and practice? Should conservatives defend free markets? Must they reject the discourse of natural rights? Can a liberal be conservative? Can a socialist? This seminar will explore such questions and others like them through a close reading of conservative writers and their critics. We will begin with the rise of conservatism as a political force in the wake of the French Revolution and follow its fortunes across the next two centuries, in works of political theory as well as literature. Authors will include Edmund Burke, Mary Wollstonecraft, Samuel Taylor Coleridge, Ford Madox Ford, Friedrich Hayek, Michael Oakshott, Robert Nozick, and Tom Stoppard. We will be interested throughout in asking what, if anything, is conservative about the Conservative Movement in contemporary American politics.
CONTEMPORARY ISSUES IN AMERICAN HIGHER EDUCATION
Robert W. Iuliano (Department of Government)

Freshman Seminar 70W   4 credits (fall term)   Enrollment: Limited to 12

Issues fundamental to society regularly play out on the campuses of America's colleges and universities. For example, how should a community react to speech that some members may find offensive, or to symbols or traditions that speak to the institution’s past but may be alienating to parts of its current student body? Is a college or university justified in considering race in admissions, or is that unfair discrimination? Should institutions invest their endowments to serve specific public policy goals, such as divestment from fossil fuel companies, as a statement about climate change, or does that convert them into political actors inconsistent with their mission and obligation to create vibrant space for academic discourse? As you join the Harvard academic community, this seminar is designed to orient you to higher education and issues that often arise on and about college and university campuses. We will look at topics normatively, asking less what the rules are and, more, what they ought to be. The seminar’s ultimate goal is to introduce you to the nature and values of the peculiar institutions that are America’s college and universities and to begin to help you understand more fully the world that will help shape your lives over the next four years.

THE CREATIVE WORK OF TRANSLATING
Stephanie Sandler (Department of Slavic Languages and Literatures)

Freshman Seminar 36G   4 credits (fall term)   Enrollment: Limited to 15

Prerequisite: Requires knowledge of one language besides English.

Translation makes culture possible. Individual writers and thinkers draw sustenance and stimulation from works created outside their own cultures, and artists working in one format get ideas from those working in entirely different media. Translation between languages and between art forms will center our seminar’s work. Taking a broad view of translation as a mental activity, we will study poems, fiction, film, photography, and music. We will stretch our own imaginative capacities by transposing material across media and genres, creating homophonic translations, and translating between languages. We will work individually as well as collaboratively. We will read a small amount translation theory, and some reflections by working translators. We will invite into our classroom a few practicing poets, artists, and translators and attend poetry readings and lectures at Harvard. The only requirement is some knowledge of a language besides English – and a readiness to play with languages, art forms, and texts. Readings from Kazim Ali, Walter Benjamin, Jorge Luis Borges, Joseph Brodsky, Anne Carson, Emily Dickinson, Forrest Gander, Susan Howe, Sor Juana Inés de la Cruz, Velimir Khlebnikov, Vladimir Nabokov, Sappho, W. G. Sebald, Tracy K. Smith, Marina Tsvetaeva, Wang Wei, and the Bible; music by John Adams, David Grubbs, and others; artwork by Peter Sacks. Films to include Despair and The Golem.
DADA AND BAUHAUS: 100 YEARS
Benjamin H. D. Buchloh (Department of the History of Art and Architecture)

Freshman Seminar 61V  4 credits (spring term)  Enrollment: Limited to 12

Note: There will be required trips to area museums.

This seminar takes its departure from the fact that Dada and Bauhaus, two of the most important artistic movements of the 20th-century, have been recently celebrated and rediscovered, and newly researched by a number of scholars and curators, partially in response to their respective centennial. Dada was founded in Zürich in 1916, the Bauhaus in Weimar in 1919, and both formations were intensely international from the very beginning, unifying artists from many different European countries (Austria, France, Germany, Hungary, Rumania, Russia, and Switzerland) to engender two astonishingly complex group formations. All the more amazing is the fact that these two groups were pursuing utterly opposite goals in their practices; in fact, one could consider them the extreme poles of the 20th-century. Dada’s goals were primarily anarchist and anti-aesthetic, yet politically often radical and progressive, and Dada was not accidentally the first avant-garde movement to include a large number of female artists in its midst. The Bauhaus, by contrast, while having its own political perspectives—ranging from Social Democratic and Socialist positions to a more affirmative production-oriented liberal democratic orientation—aimed for the improvement of everyday life for the social collective as a result of design and production of consumer goods and transformed architectural conditions. The seminar will focus on individual practices, as much as it will develop a critical comparative reading of the various features of the group identities. Throughout the semester, we will be reading original documents and manifestos, along with the writings of the artists, complemented obviously with key critical essays that make up the most important recent art historical literature on both subjects. The final two meetings of the seminar will also address the tremendous impact that both formations had on American art of the 1950s and 1960s, ranging from the foundation of the Chicago Bauhaus/Institute of Design and Black Mountain College—both institutions that explicitly modeled themselves on the Bauhaus and brought former faculty members from the Bauhaus to the United States—and we will trace the enormously important influence that the rediscovery of the Dada legacies had on the development of artistic practices after Abstract Expressionism such as Pop Art and Fluxus in the United States in the late 1950s and early 1960s.
DEATH AND IMMORTALITY
Cheryl Chen (Department of Philosophy)

Freshman Seminar 30Q  4 credits (fall term)  Enrollment: Limited to 15

In this seminar, we will discuss philosophical questions about death and immortality. What is death? Is there a moral difference between “brain death” and the irreversible loss of consciousness? Is the classification of a person as dead a moral judgment, or is it an entirely scientific matter? Is death a misfortune to the person who dies? How can death be a misfortune if you are no longer around to experience that misfortune? Is it possible to survive after death? What does it mean for you to survive after your death? Is there such a thing as an immaterial soul distinct from your body? Is immortality something you should want in the first place? Even if you do not live forever, is it nevertheless important that humanity continues to exist after your death? By discussing these questions about death, we will hopefully gain insight about the importance and meaning of life.

DECISION THEORY AND GAME THEORY IN THE REAL WORLD
Christopher N. Avery (Harvard Kennedy School) & Richard J. Zeckhauser (Harvard Kennedy School)

Freshman Seminar 70X  4 credits (fall term)  Enrollment: Limited to 12

Recommended Preparation: The only mathematical prerequisite is high school algebra and some knowledge of elementary statistics.

The goal of this seminar is to provide students with building blocks for understanding how to make better decisions. Decision theory, which focuses on how to assess uncertainties and to define preferences across outcomes, is explicitly prescriptive, i.e., explaining what one should do. Game theory engages more complex situations where the choices of other individuals come into play. Nevertheless, acquaintance with the central tools of gam theory should enable students to behave more effectively in interactive situations. It should also help them structure interactive situations in ways that produce collectively superior results. The seminar will present some technical material from these two disciplines, but seminar meetings will focus on discussion and applications of those technical results. The only mathematical prerequisite is high school algebra and some knowledge of elementary statistics. However, conceptual thinking will be stressed. Students will be required to complete answers to three discussion questions during the semester. These questions are designed to prompt detailed reflection about the subject of the readings for a particular topic as well as to promote incisive conversations during the relevant session of the course. We will ask students to submit preferences for these Discussion Questions during the first course meeting and will assign a set of students to each of the subsequent Discussion Questions based on these preferences. Each written answer to a Discussion Question should be on the order of 3 or 4 paragraphs (1-2 double-spaced pages), and should be submitted to the course website by 8 pm the day before the relevant lecture. Students will also be required to complete a 15 to 20-page research paper applying the techniques of the course to a policy application of their choosing.
DISCOVERING CULTURES AND THE SEA: NAVIGATION, EXPLORATION, CONQUEST, AND TRADE
Theodore C. Bestor (Department of Anthropology)

Freshman Seminar 71E 4 credits (fall term) Enrollment: Limited to 12

Note: There will be required trips to the USS Constitution, the Peabody Museum, and Collection of Historical Scientific Instruments.

Oceans divide distant places, but throughout history, societies have looked across the sea for ways to make faraway connections. This seminar will examine many ways that cultures around the world have been shaped by maritime matters. Navigation, Vikings, and Basques in North America; the spice trade; Spanish galleons; slavery; New England’s trade with Asia in the 18th and 19th centuries; Maine lobstermen; naval warfare; and overfishing are all part of the story. Two short essays and a term project (approximately 12 pages) are required.

ECONOMIC DEVELOPMENT
Michael R. Kremer (Department of Economics)

Freshman Seminar 41J 4 credits (fall term) Enrollment: Limited to 12

Prerequisite: Students are expected to have had some background in economics, such as an AP economics course in high school, or simultaneous enrollment in Economics 10A or Social Analysis 10.

Understanding the determinants of the wealth of nations has long motivated the study of economics, and it is arguably the most important problem in the field for human welfare. This seminar will examine economic development, looking both at historical experience and at contemporary issues in developing countries. It will focus on writing in economics, but it will also draw on other disciplines, including political science and sociology. The seminar will start with readings of Adam Smith, Karl Marx, and Max Weber. Participants will then read works illustrating some of the techniques and modes of reasoning associated with contemporary microeconomics and statistical analysis. Finally, it will conclude with contemporary writing on development, including work that addresses big-picture political economy models of the role of institutions in development and more microeconomic approaches.
THE ECONOMIST’S VIEW OF THE WORLD
N. Gregory Mankiw (Department of Economics)

Freshman Seminar 43J 4 credits (fall term) Enrollment: Limited to 15

Note: Students are expected to have had some background in economics, such as an AP economics course in high school or simultaneous enrollment in Economics 10A.

This seminar’s goal is to probe how economists of various perspectives view human behavior and the proper role of government in society. Each week, seminar participants will read a brief, nontechnical, policy-oriented book by a prominent economist. The participants will then discuss the work’s strengths and weaknesses, exploring the positive scientific judgments and normative value systems that underlie each author’s policy prescriptions. As preparation for the class meeting, each seminar participant is expected to send the instructor a brief weekly email describing his or her views of the week’s reading. In addition, each participant will have the opportunity to write his or her own essay addressing an economic policy issue. The essay will be read and discussed by all seminar participants.

EMPTINESS, NON-ATTACHMENT AND THE PROBLEM OF SUFFERING
Andrew J. Graham (Department of Philosophy)

Freshman Seminar 61T 4 credits (spring term) Enrollment: Limited to 12

Some philosophers, considering the suffering that we all naturally face, have recommended non-attachment as a way of overcoming that suffering and living a better life. Often they defend this stance by appealing to ideas concerning the nature of the world, the nature of ourselves, and the relationship between ourselves and the world. In particular, they emphasize the “emptiness” of these phenomena and argue that grasping this emptiness can help us eliminate attachments and understand why such elimination is sensible. In this seminar, we explore these themes, drawing on perspectives found in both the Eastern and the Western philosophical tradition. We will begin with a general overview of ideas along these lines from the Eastern tradition, starting with ancient Buddhist philosophy and some of its later developments, including work by Nāgārjuna and other Eastern philosophers. We will then shift to the Western tradition and consider points of contact with the ideas already discussed. In particular, we will look at philosophical work on the nature of the ordinary objects that make up the world around us, work on what we can know and should believe about that world, and finally work on ourselves, our agency, and our freedom to act in that world. Our aim in these explorations will be to understand these philosophical notions of emptiness and non-attachment and their application to the problem of suffering.
**ENERGY: BE THE CHANGE**  
Mara Prentiss (Department of Physics)

| Freshman Seminar 27K | 4 credits (fall term) | Enrollment: Limited to 12 |

In the US, energy use creates large political and social tensions, and much emphasis is placed on climate change. In China, health issues surrounding energy use are emerging as a critical issue. Importantly, there are many areas where the role of energy is often overlooked. A large fraction of current geopolitical tensions arise from issues originating in energy consumption, and that fraction may increase as water use and energy use become more closely tied. Too many discussions of energy focus on one feature of the problem, without considering how a change in one area will inevitably ripple out with the power to transform our relationships with each other and with the physical world. Some of those ripple effects are enormously positive; others are not. The goal of this seminar will be to choose energy changes that we would like to happen and to form a realistic plan for making that change occur. An important feature of the discussion will be considerations about what is physically possible; however, the major emphasis will be on trying to understand the connections that will be altered by that change. Any change, however laudable, inevitably creates both winners and losers. For change to happen, losers must at least be brought to accept the change. One goal of the seminar will be to establish local and global forums that allow us to learn more about people’s reactions to proposals for energy change so that our proposals for change have a real possibility of coming to pass.

**ENTREPRENEURSHIP AND VENTURE CAPITAL IN THE GLOBAL ECONOMY**  
Paul A. Gompers (Harvard Business School)

| Freshman Seminar 70G | 4 credits (spring term) | Enrollment: Limited to 12 |

*Note:* In addition to traditional class sessions, the seminar will incorporate field trips to the Harvard Innovation Lab and start-up companies.

Entrepreneurial activity has been a potent source of innovation and job generation in the global economy. In the US, the majority of new jobs are generated by new entrepreneurial firms. Entrepreneurship has had many definitions over the past two and a half centuries, since Richard Cantillon first used the term in the early 18th-century. Some have focused on the risk-bearing nature of entrepreneurship, while others have focused on the innovations that entrepreneurs create. Both are important elements of what entrepreneurs do, but neither is a complete definition of entrepreneurship. This seminar will examine the role that entrepreneurship and venture capital plays in economic development and innovation. Academics and policymakers have long highlighted the critical role that these sectors play in promoting a dynamic economy and opportunities for sustained competitive advantage. In particular, venture capitalists have been the source of financing for most of the major technology leaders, including Microsoft, Apple, Google, Amgen, and Facebook. Numerous countries have sought to grow their domestic venture capital industry. This seminar will explore the phenomenon through the lenses of economics, history, and psychology. Entrepreneurial and venture capital markets in the US, Israel, and China will be examined in depth through academic articles, books, and Harvard Business School case studies.
EVOLUTION, BUDDHISM, AND ETHICS
John R. Wakeley (Department of Organismic and Evolutionary Biology)

Freshman Seminar 21I  4 credits (fall term)  Enrollment: Limited to 12

Evolutionary genetics traces back to Darwin’s (1859) idea of natural selection. Darwin provided a compelling theory about how species change due to competition in reproducing populations, yet it remains difficult to understand, particularly when applied to ourselves. To enable critical evaluation and discussion of ethical questions and to illustrate connections between science and Buddhism, about one-third of this seminar will cover select details of evolutionary genetics. The focus will be on understanding human genetic variation. Buddhism originated with Siddhattha Gotama’s enlightenment around 500 BCE, achieved after six years of intense devotion to the problem of human suffering. He emerged as the Buddha, or “Enlightened One,” making the bold statement that suffering within each person results from misunderstanding the nature of one’s self and its relationship to the ever-changing world. He outlined a program of analytical introspection and meditation aimed at solving this problem. As with evolutionary genetics, critical evaluation and discussion of Buddhist ideas in this seminar will be fostered by learning the details of what the Buddha taught. Major points of overlap between evolutionary genetics and Buddhism emerge in the ways they undermine appearances, deconstructing phenomena that, at first, appear wholly unbreakable. We will bring our knowledge of Buddhism to bear on ethical questions arising from genetic testing, the use of human embryos in research, and the prospects for human genetic engineering.

EXPLORING THE INFINITE
Peter Koellner (Department of Philosophy) & W. Hugh Woodin (Department of Mathematics and of Philosophy)

Freshman Seminar 23C  4 credits (spring term)  Enrollment: Limited to 12

Infinity captivates the imagination. A child stands between two mirrors and sees herself reflected over and over again, smaller and smaller, trailing off to infinity. Does it go on forever? Does anything go on forever? Does life go on forever? Does time go on forever? Does the universe go on forever? Is there anything that we can be certain goes on forever? It would seem that the counting numbers go on forever, since given any number on can always add one. But is that the extent of forever? Or are there numbers that go beyond that? Are there higher and higher levels of infinity? And, if so, does the totality of all of these levels of infinity itself constitute the highest, most ultimate, level of infinity, the absolutely infinite? In this seminar we will begin our exploration of the infinite with questions like these. We will examine the different senses of the infinite by seeing how the infinite arises in many disciplines, from theology to the arts, from physics to modern mathematics. We will eventually focus on the infinite in mathematics, and we will pursue its systematic study. But even here we are beset by difficulties. For there are so-called “paradoxes of the infinite,” paradoxes that have led some to the conclusion that the concept of infinity is incoherent. We will see, however, that what these paradoxes ultimately show is that the infinite is just quite different from the finite and that, by being very careful, we can sharpen the concept of infinity so that these paradoxes are transformed into surprising discoveries. We will follow the historical development, starting with the work of Cantor at the end of the 19th-century and proceeding up to the present. The study of the infinite has blossomed into a beautiful branch of mathematics. We will get a glimpse of this
subject, and the many levels of infinity, and we will see that the infinite is even more magnificent than one might ever have imagined.

**FAITH AND FICTION IN AMERICAN HISTORY**  
David F. Holland (Harvard Divinity School)

Freshman Seminar 60H  
4 credits (fall term)  
Enrollment: Limited to 12

This seminar uses key literary works to explore some of the most difficult and demanding questions in the religious history of the United States: Does God have a special relationship with the United States? Is sin an individual responsibility or a social flaw? Why has American religion been so frequently concerned with sexuality? How has religion shaped racial identities and tensions? How does it inform domestic relationships? How do non-Christian immigrants find a place and a voice in a nation with deeply entrenched Christian traditions? To explore these and other areas of concern, we bore into the faith-inflected cultures of American history through the imagined narratives of some of its most celebrated writers, including the likes of Catharine Sedgwick, Harriet Wilson, Flannery O’Connor, James Baldwin, Rudolfo Anaya, Pearl Abraham, Ayad Akhtar, and Marilynne Robinson. I will offer mini-lectures to contextualize these works in their historical moment. We will read some scholarly work to sharpen our tools of analysis, but mostly we will read and talk about the novels themselves. The seminar aims to be both analytically rigorous and aesthetically rewarding.

**FIGHTING MONSTERS: GOTHIC FICTION AS SOCIAL CRITIQUE**  
Nicole A. Sütterlin (Department of Germanic Languages and Literatures)

Freshman Seminar 61P  
4 credits (fall term)  
Enrollment: Limited to 12

Note: Required events and features: a workshop with Boston Mobilization, a local nonprofit on social justice; a Skype interview with a representative of the Center for Genetics and Society, the only US nonprofit on genetic manipulation; possibly a workshop with civil rights leader Bryan Stevenson; visits to the Harvard Art Museums, the Houghton Library; and finally, a Halloween trip to Salem!

In this seminar, we explore how Gothic fiction makes use of the figure of the monster to question social norms. What do vampires, zombies, and cyborgs tell us about ourselves and our culture? We begin in the 18th-century, when Enlightened Europe witnessed an unprecedented vampire epidemic. Modern monsters, such as the vampire, entered the cultural stage at the same time that the core values defining Western democracies were taking off: free will, free press, religious tolerance, and human equality. What role did literary monsters play in the definition of these ideas? What role do they play today, when these freedoms are in jeopardy? Chasing various monster figures into the 21st-century, we explore how their stories reflect the social conflicts of their time and ours. Texts from canonical American, British, French, and German authors invite us to understand the perspective of those whom society excludes because they don’t fit its norms or they voice dissent. While we will encounter plenty of “classic” monsters, we will investigate the roles of all kinds of societal “others,” from madmen, trauma victims, and minorities, to death row inmates. Topics include: media revolutions, use and abuse of technological progress, revolution of sexuality, trauma theory, race, migration, prison politics, and surveillance. Materials include film, visual arts, and the natural sciences. Excerpts from select texts by influential cultural theorists will help us to develop the analytical skills necessary to uncover the social critique hidden beneath Gothic fiction’s entertaining “chill and thrill” surface.
FINDING CONNECTIONS: PERSPECTIVES ON PSYCHOLOGICAL DEVELOPMENT AND MENTAL ILLNESS
Nancy Rappaport (Harvard Medical School)

Freshman Seminar 25N 4 credits (fall term) Enrollment: Limited to 12

The seminar’s challenge will be to deepen our understanding of human development and how individuals cope with serious emotional or social difficulties (neglect, bipolar disorder, autism, depression, schizophrenia). We will use multiple perspectives: medical observations and texts that provide practical knowledge (e.g., *The New England Journal of Medicine* review articles), narrative readings to understand how patients experience the meaning of illness from the inside out (e.g., *The Center Cannot Hold*), visitors who will discuss their experience with mental illness, and how development-related mental illness is portrayed in the press (e.g., *The New Yorker* articles). We will start with the mental life of babies and how scientists interpret infants’ nonverbal ways of finding safety and security. This begins the journey of our understanding fundamental needs for tenderness, holding, and making meaning. Understanding how conditions such as autism, depression, and schizophrenia are described in clinical research and literature will help us appreciate the biological vulnerabilities and relational patterns that may disrupt the human connection. We will examine the resourcefulness required for both fragility and resiliency. Throughout the seminar, the instructor, as a practicing child and adolescent psychiatrist, will bridge the gap between research findings, clinical applications, and everyday insight.

FINDING YOUR INNER NEANDERTHAL
Christian A. Tryon (Department of Anthropology)

Freshman Seminar 70N 4 credits (fall term) Enrollment: Limited to 12

Note: There will be a required trip to New York City. There will be no cost to the student.

Much of our history is written in our genes, and analyses of ancient and modern DNA have revealed that many living humans retain a genetic signature from our extinct evolutionary cousins, the Neanderthals. In this seminar, we will work together to help you find your inner Neanderthal. Our understanding of the past begins as you learn to make your own stone tools, a unique window to interpret the Paleolithic record. This experience guides your examination and analysis of real artifacts made and used by Neanderthals more than 50,000 years ago, drawn from the extensive collections of Harvard’s Peabody Museum. The ability to create and interpret the archaeological record provides unparalleled insight to explore what the Neanderthals did and thought, and how they lived, loved, and died in Ice Age Eurasia. In addition to artifact manufacture, analysis, and weekly readings, there will be a field trip to the American Museum of Natural History in New York City to examine how Neanderthals and other early humans are represented in public displays of the past, and the seminar will culminate in the student design of a museum exhibit to be displayed on the Harvard campus. This freshman seminar will draw on perspectives from archaeology, paleontology, the history of science, and museum studies to study the Paleolithic; it will provide the ability to think critically about how we interpret the past and will explore how a study of our extinct relatives reveals the biases inherent in our perceptions of the world around us.
FIRST STARS AND LIFE IN THE COSMOS
Abraham Loeb (Department of Astronomy)

Freshman Seminar 21G  4 credits (spring term)  Enrollment: Limited to 12

Since the universe is expanding, it must have been denser in the past. But even before we get all the way back to the Big Bang, there must have been a time when stars like our Sun did not exist, because the universe was denser than they are. Since stars are needed to keep us warm, we face the important question about our origins: How and when did the first stars form? Primitive versions of this question were considered by humans in religious and philosophical texts for thousands of years. This seminar will summarize the fundamental principles and scientific ideas that are being used to address this question in modern cosmology. Eventually, the formation of stars like the Sun was accompanied by planets like the Earth on which life has emerged. When did life start in the cosmos and when will it all end? The seminar will describe current plans to search for extraterrestrial life, including project “Starshot,” which aims to visit the nearest stars within our lifetime and send close-up photos of their planets.

FOLKLORE AND THE CULTURE OF CHILDHOOD
Maria M. Tatar (Department of Germanic Languages and Literatures and Committee on Degrees in Folklore and Mythology)

Freshman Seminar 36J  4 credits (fall term)  Enrollment: Limited to 12

This seminar begins by examining an international repertoire of traditional stories and explores the migration of fairy tales into literary and cinematic cultures for adults and for children. From the wonder worlds of fairy tales, with their high coefficients of weirdness, we will travel down the rabbit hole with Lewis Carroll’s Alice and soar up to Neverland with J. M. Barrie’s Peter Pan. J. K. Rowling, Neil Gaiman, Philip Pullman, and others will guide us through our investigation of what Graham Greene called the “excitement and revelation” of books read in childhood.
FREE SPEECH
Sanford J. Ungar (Department of Government)

In this age of rapid globalization and heightened cross-cultural contacts, nations struggle to reaffirm their identities and values. In the United States, one of the most precious values is free speech, embedded in the First Amendment to the Constitution and regarded as a keystone of American democracy. But arguments over the boundaries of free speech have become intense, especially in the era of electronic communication. This seminar will examine the dialogue taking place within the United States and around the world on free speech issues—sometimes civil, but often a political or cultural confrontation that turns violent. We will discuss international and domestic protests over politically sensitive cartoons, controversies over Holocaust denial, whether hate speech should be banned on campuses, if the domestic media can ever be legitimately constrained on national security grounds, whether anti-gay religious activists have a right to disrupt military funerals, if pornography and violent music lyrics should be regulated, and what constitutes free speech on the Internet or cellphones. Through Supreme Court decisions and by other means, we will examine the debate over what it means to be patriotic and whether patriotism requires Americans to say, or prohibits them from saying, certain things. We will look at how standards have changed over the years, and we will ask whether other countries’ attitudes toward free speech and the other First Amendment freedoms should influence US foreign policy toward those countries. Examples of constraints on free speech in our daily lives and work, unwitting or not, will also be considered.

FROM THE ARAB SPRING TO ISIS: NATIONAL SECURITY CHALLENGES IN THE MIDEAST
Charles Freilich (Department of Government)

The Middle East is home to many diverse peoples, with ancient and proud cultures, in varying stages of political and socioeconomic development, often times in conflict. Now in a state of historic flux, the Arab Spring and subsequent regional tumult have transformed the Middle Eastern landscape, with great consequences for the national security strategies of the countries of the region. The primary source of the world’s energy resources, the Middle East remains the locus of the terror-WMD-fundamentalist nexus, which poses a significant threat to regional and international security, as does the rise of ISIS. The seminar surveys the national security challenges facing the region’s primary players (Egypt, Saudi Arabia, Iran, Iraq, Syria, Lebanon, Israel, the Palestinians, Jordan, and Turkey) and how the recent upheaval has affected them. Unlike many Middle East courses, which focus on US policy in the region, this seminar concentrates on the regional players’ perceptions of the threats and the opportunities that they face and on the strategies they have adopted to deal with them. Students play the role of senior advisers to the actual regional leaders in power and write “real world” policy papers for them, from their perspective and given the strategic, political, and personal constraints they face. The seminar provides an essential vantage point for all those interested in gaining a deeper understanding of the region, especially those with an interest in “real world” international relations and national security.
FROM GALILEO TO THE BIG BANG THEORY: CONFLICT AND DIALOGUE BETWEEN RELIGION AND SCIENCE
Karin Öberg (Department of Astronomy)

Freshman Seminar 50S 4 credits (fall term)  Enrollment: Limited to 12

**Prerequisite:** None. The seminar will include scientific concepts and their empirical and theoretical foundations, but no scientific preparation beyond high school physics is required.

It is easy to find controversies at the intersection of science and religion, from the time of Galileo to Darwin and the emergence of modern cosmology. Yet many scientists throughout the ages have been devoutly religious, challenging claims of an intrinsic enmity between science and religion. This seminar treats a number of historical conflicts between religious beliefs and scientific theories, among them the Galileo affair, the clockwork universe, evolution, and the Big Bang theory. The seminar will introduce students to the main protagonists through their own words, and through contemporary and modern-day commentaries. We will explore why these conflicts arose and, based on these historical lessons, what we can expect the future relationship between science and religion to be. The ultimate aim of this seminar is for students to form their own opinion of which kind of conflicts between science and religion are inevitable and which are accidents of time and place, and under which conditions, if any, interactions between science and religion can be mutually beneficial. Most of the seminar will focus on Christianity and the natural sciences, with emphasis on astronomy and cosmology, but the relationship between other ancient and contemporary religions and other sciences will be discussed as well to provide a broader context.

GEOSCIFI MOVIES: REAL VS. FICTION
Miaki Ishii (Department of Earth and Planetary Sciences)

Freshman Seminar 23I 4 credits (fall term)  Enrollment: Limited to 12

**Note:** Students are required to watch the assigned movie prior to class, and must be comfortable with high-school level math and science.

Natural disasters such as earthquakes, tsunamis, hurricanes, and volcanic eruptions have major impact on society and cause great tragedies. The participants in this seminar will examine one Earth-science related science fiction movie each week and discusses features that are real and fictitious based upon our current understanding of the science of disastrous events. Simple math and science concepts are used to test how likely some effects are (e.g., is a magnitude 11 earthquake possible and why?), and to understand the underlying science behind these features (e.g., what are the factors that control the size of an earthquake?). If applicable, we discuss how these scientific ideas are exaggerated to dramatize the effects.
“GET OUT OF MY SPACE!” MAKING SENSE OF OUR BUILT ENVIRONMENT
Patricio del Real (Department of History of Art and Architecture)

Freshman Seminar 61L 4 credits (fall term) Enrollment: Limited to 12

Today space is at a premium. We all want space, but what sort of space do we want? We have social space, virtual space, personal space, safe space, collective space. How much space is there? Can we run out of it? How much do you need when you tell me: “Get out of my space?” What makes it “yours?” How do we make space? Who controls it? Architecture helps us define space. We live, study, work, and play in buildings and cities that have become the stages for our everyday lives, helping us do what we do and live our present. But architecture has another much more important function: It helps us imagine other possible ways of living. Architecture helps us envision the spaces we want to live in. In this seminar, we will explore the different ways in which we have created, claimed, fought over, shared, and continue to imagine space. Our discussions will put a premium on the way architects, artists, and social actors have produced space, and how their ideas and projects guide the way we understand our constructions of space. We will make space through hands-on projects, such as mapping social networks and transforming your space through the technique of collage. These projects will challenge and help you record, transform, and produce space. This seminar is designed to enrich your knowledge of space so that you may take a position on contemporary social questions, debate the nature of our built environment, and claim space for yourself.

GETTING TO KNOW CHARLES DARWIN
William Friedman (Department of Organismic and Evolutionary Biology)

Freshman Seminar 24P 4 credits (fall term) Enrollment: Limited to 12

Note: Required field trips to the Arnold Arboretum of Harvard University, the Museum of Comparative Zoology, and a local pigeon fancier will be included. Transportation will be provided.

Do you think you know who Charles Darwin was? The legend and sober-looking bearded scholar behind the most important paradigm shift in human history? In this seminar, we will read a selection of Darwin’s publications (including parts of Darwin’s seminal work, On the Origin of Species), as well as his private correspondence, paying close attention to the man behind the science as revealed by his writings. We will get to know Charles Darwin—the avid breeder of pigeons, lover of barnacles, devoted father and husband, gifted correspondent and tactician, and remarkable backyard scientist. In this latter vein, we will reproduce 10 of Charles Darwin’s classic Down House experiments that were central to making his case for natural selection and evolution in On the Origin of Species, as well as his many other books on natural history. Field trips to the Arnold Arboretum of Harvard University, the Museum of Comparative Zoology, and a local pigeon fancier will provide the setting for recreating a selection of the myriad observations of organisms and their interactions with the environment and each other that made Darwin the master of minutia and provided the foundation for his grand synthesis of evolutionary pattern and process. Each week, we will also read, react to (through writing), and discuss Darwin’s published writings and letters.
GHOSTS: HOW WE HAVE SUMMONED, REPELLED, AND REPRESENTED INTRUSIONS FROM THE AFTERLIFE
Deidre S. Lynch (Department of English)

Freshman Seminar 61E 4 credits (fall term) Enrollment: Limited to 12

The living grieve for their lost dead, and world religions uniformly promise that this separation will be temporary and encourage us to anticipate happy reunions in the afterlife. But the ghost stories that theologians, philosophers, poets, dramatists, and novelists have recounted over the last two millennia suggest that the prospect that the restless dead might return to our world and to their former haunts in fact occasions rather more mixed feelings. We love and dread the dead. We need them (more than they need us), and so we preserve their memories, sometimes their remains, in graveyards, museums, and our photograph albums. At the same time, we fear their malevolence. In this class you’ll investigate such mixed feelings in various ways: for instance, by visiting cemeteries and considering how burial practices ease the dead out of the world of the living; by exploring religious accounts of the relationship between body and spirit; by learning about the modern sciences’ commitment to making rational sense of the occult; and above all by reading and viewing stories of hauntings and spirit possession, from Hamlet to Beloved to Birth. The class will exploit, as well, our location in the Boston area: a setting where the past often refuses to stay put and stay dead, and which, since the era of the Massachusetts Bay Colony, has been haunted by disquieting histories of violence, usurpation, and vengeance. Nineteenth-century Boston and Cambridge, we’ll find, each have a claim to be considered ground zero for modernity’s characteristic projects of soul searching and ghostbusting.

GLOBAL CRIME FICTION: TACKLING CRIME, CORRUPTION, AND SOCIAL DISINTEGRATION
Karen L. Thornber (Department of Comparative Literature and of East Asian Languages and Civilizations)

Freshman Seminar 61O 4 credits (spring term) Enrollment: Limited to 12

Crime fiction is one of literature’s most popular genres, with hundreds of millions of fans across the globe. Both local and foreign crime fiction, the latter often in translation, flies off bookshelves from Boston to Barcelona to Beijing and beyond, regardless of whether the novel takes place in a small Swedish village or in multiple cosmopolitan megacities. Why is this? Part of it is in the storytelling. Who can resist a gripping whodunit with unexpected twists and turns and often with an appealing investigator or detective (professional or amateur), particularly if everything is resolved at the end, and often in ways we least expect? But part of the appeal of crime fiction is also the insights this genre can offer into some of the most significant challenges facing societies globally. In this seminar, we will read a selection of best-selling crime fiction from the Americas, Africa, Asia, Europe, and the Middle East. We will be most concerned with what this literature tells us about investigating, exposing, and potentially ameliorating historical crimes,
environmental crimes, corruption in criminal justice, and social disintegration, particularly as these involve injustices inflicted on marginalized and otherwise vulnerable individuals and communities, people targeted on account of their class, ethnicity, gender, race, religion, sexuality, and other factors. Secondary readings and class discussion will provide the necessary cultural and literary contexts for these readings.

GO ROCOCO! TECHNIQUES IN DIGITAL DESIGN
Andrew J. Holder (Harvard Graduate School of Design)

Freshman Seminar 60Z 4 credits (fall term)  Enrollment: Limited to 12

Note: This seminar is a hybrid design workshop and seminar in the history of 18th-century architecture. Students will learn to use state-of-the-art digital design tools while critically examining canonical examples of late Baroque and Rococo buildings. Design skill, artistic ability, and prior exposure to digital modeling software are not required for this seminar, nor is any prior knowledge of architecture. Absolute neophytes are welcome. Students do not need to purchase software or any computer equipment in order to participate.

At the beginning of the 18th-century, Baroque architecture and art in Western Europe entered a new phase called the Rococo, characterized by extreme visual complexity, ornamentation, and the collapse of compositional and political hierarchy. Architectural interiors became excessive (or at least no longer classically ordered) during this period, filled almost to the point of overflowing with painting, sculpture, and decoration, much of it depicting characters in mischievous and compromising postures. This seminar will examine the Rococo as a precedent for reflection on problems in contemporary design and as a provocation to create new work using digital design tools. Coursework will be founded on two related propositions: first, that the architecture and art of the Rococo are remarkably similar to the visual and material culture of the present day; and second, that contemporary design stands to benefit from a close examination of its predecessor. Activities will be divided between reading, writing, and making. Each week, students will examine a Rococo building precedent, reading the architecture against a series of texts on contemporary design issues. In addition, each student will undertake a semester-long design project using digital design tools to create and animate an architectural interior in the manner of the Rococo. Software tutorials on the Adobe Creative Cloud software suite will be provided in class. Readings and tutorials will be supplemented with field trips to the Houghton Library and Fogg Museum to experience Rococo artifacts firsthand.
GUT REACTIONS: DISCOVERING CHEMISTRY FROM THE HUMAN MICROBIOTA
Emily P. Balskus (Department of Chemistry and Chemical Biology)

Freshman Seminar 50Q 4 credits (spring term) Enrollment: Limited to 12

The human gut is colonized by trillions of microorganisms that exert a profound influence on our health. Notably, the chemical capabilities of gut microbes extend beyond those found in our own cells, playing roles in nutrition, directing immune system development, and protecting against pathogens. However, we still do not understand how the vast majority of this microbial chemistry actually takes place, which stands in stark contrast to our knowledge of human physiology. The aim of this laboratory-based seminar is to expose students to a cutting-edge area of research at the interface of chemistry and microbiology. Over the course of a semester, students will work as a team to design and implement an experimental approach for discovering new enzymes from human gut microbes. Potential targets include enzymes involved in antibiotic resistance, metabolism of dietary components and pharmaceuticals, and modification of host metabolites. Students will pursue these goals in a fully equipped laboratory dedicated to undergraduate research. Seminar meetings will combine time in the lab with discussion of research literature and experimental techniques. Students will also have flexible access to the teaching laboratory to continue their experiments outside of the hours scheduled for the seminar. By having the opportunity to both explore a timely scientific problem and to drive the direction of their own research at a very early stage in their academic experience, students in this seminar will be extremely well prepared to seek out further undergraduate research opportunities and to pursue scientific career paths.

HEALTH AND MENTAL HEALTH IN EVERYDAY LIFE
Mary Ruggie (Committee on Degrees in Studies of Women, Gender, and Sexuality)

Freshman Seminar 48E 4 credits (spring term) Enrollment: Limited to 12

Why do students feel ill before an exam? Why do women seem to suffer more than men from depression and eating disorders, whereas men use and abuse substances more than women? Why do some racial/ethnic groups have better or worse health and mental health outcomes than others? These are some of the questions this seminar addresses. Using interdisciplinary perspectives, we will investigate how such social and personal characteristics as gender, race/ethnicity, family background, and self-esteem impact health and mental health behaviors and outcomes. We will also examine how specific configurations of circumstances and contexts contribute to health and mental health problems. For instance, college students, regardless of gender, race/ethnicity, and so on, are increasingly experiencing stress and turning to amphetamines at higher rates than young adults who are not in college. One goal in these classes will be to explore causes and consequences. Another will be to understand the role of individuals themselves, their personal and social support networks, and health care professionals in developing and guiding positive strategies for coping and healing. Throughout, we traverse the boundary between health and illness in order to understand the complex web of factors that create and jeopardize well-being. Students will present analyses of the readings in class and write short papers based on class readings and discussions, as well as additional research. Students will also give two brief presentations: a team project and a representation of health and/or mental health in the arts.
HERETICS, GANGSTERS, WRITERS
Saul N. Zaritt (Department of Comparative Literature and of Near Eastern Languages and Civilizations)

Freshman Seminar 61I 4 credits (fall term)  Enrollment: Limited to 12

Note: The seminar will include a required trip to the Yiddish Book Center in Amherst, Mass., and a special meeting with Art Spiegelman (the creator of Maus) during his visit to campus in the fall.

Prophets gone rogue, rabbis trained as thieves, false messiahs, condemned heretics, synagogue-going gangsters, and writers lost between languages and cultures—these are only a handful of the sinful yet compelling characters that appear in texts written by Jews over the past three millennia. This seminar examines the ways in which such figures challenged the norms of collective Jewish practice by walking the boundaries between Jewish and non-Jewish worlds. We will read famous scenes of transgression in the Bible—from Eve in the garden of Eden to the “heresy” of Jesus—and continue on to stories of rabbis gone mad, early modern false messiahs, and excommunicated philosophers. Works to be discussed include the writings of Sholem Aleichem, Franz Kafka, Philip Roth, and Art Spiegelman, films by the Coen Brothers, and music by Bob Dylan and Leonard Cohen. We will talk about how these artists struggled to simultaneously embody and escape their Jewishness, often by viewing this lost, rejected, and regained tradition in radical terms. This often meant that these sinners and saints would ask troubling questions that challenged stable Jewish communal narratives while also imagining the possibility of new utopias and dystopias. What was the goal of such boundary crossing? Did they simply want to sin for sinning’s sake? Why is it that, paradoxically, the words of these sinners—however, embedded in the dark pessimism of transgression—often appear to open the door to salvation?

It was amazing to take a small course like this with one of the preeminent scholars in the world on this subject guiding our reading and discussion.
— A FRESHMAN SEMINAR STUDENT
HISTORY, NATIONALISM, AND THE WORLD: THE CASE OF KOREA
Sun Joo Kim (Department of East Asian Languages and Civilizations)

Freshman Seminar 43W 4 credits (fall term)  Enrollment: Limited to 12

Note: All readings will be in English.

This seminar will explore the quandary that faces all historians: To what extent is the understanding of past episodes influenced by current politics, and to what extent is current politics influenced by people’s understanding of the past? In the study of Korean history, this question is particularly sharp since the postcolonial division of Korea into North and South has thrust the memory of past events into current political discussions as well as scholarly debates. The seminar will investigate selected events in Korean history to map the interaction between historical writing and politics: the origins of Korea; Korean territory and the Korean people; cultural contacts with China and Japan and indigenization; social and regional marginalization and discrimination; Confucian transformation of Chosŏn Korea and its legacy in contemporary Korean culture; the legacy of pre-World War II Japanese occupation; and the contesting history of popular movements and religion. Why have some historians pictured Korea as a Japanese colony, a miniature replica of China, or a local variant of Chinese civilization? Why have other historians emphasized certain periods and aspects of Korean history while ignoring others? How have historians described Korea’s relationships to China, Japan, and the rest of the world? Has the perception of Korea as a marginalized people and region influenced how its history has been described? Are there any connections between popular traditions and movements and this historical and scholarly discussion? Readings (all in English) will include translated primary documents as well as political and historical studies. Students are required to write five short critical essays in addition to weekly Web posting.

THE HOLOCAUST IN HISTORY, LITERATURE AND FILM
Kevin J. Madigan (Harvard Divinity School)

Freshman Seminar 49G 4 credits (fall term)  Enrollment: Limited to 15

This seminar will approach the Nazi persecution of European Jewry from several disciplinary perspectives. Initially the seminar will explore the topic historically. In these weeks, the seminar will use a variety of historical materials dealing with the history of European antisemitism, German history from Bismarck to the accession of Hitler, the evolution of anti-Jewish persecution in the Third Reich, and the history of the Holocaust itself. Sources to be used will include primary sources produced by the German government 1933–1945, by Jewish victims-to-be or survivors, documentary films, and secondary interpretations. The aims of this part of the seminar will be to understand the basic background to, and narrative of, the Holocaust to introduce freshmen to the use of primary historical sources, and to familiarize them with some of the major historiographical debates. Then the members of the seminar will ponder religious and theological reactions to the Holocaust. Here, the seminar will use literary and cinematic resources as well as discursive
theological ones. The seminar will also consider the historical question of the role played by the Protestant and Catholic churches and theologies in the Holocaust. The seminar will conclude with an assessment of the role played by the Holocaust in today’s world, specifically in the United States. Throughout the seminar, participants will use various literary and cinematographic sources and test their limits in helping to understand and to represent the Holocaust.

“How Did I Get Here?”—Appreciating “Normal” Child Development

Laura M. Prager (Harvard Medical School)

Freshman Seminar 24U 4 credits (spring term) Enrollment: Limited to 12

Understanding “normal” growth and development may seem like a relatively easy task at first. We take the nuances of developmental differences for granted because we’re so accustomed to experiencing them. Nevertheless, defining normal (vs. abnormal) development is a complex and controversial task. Development involves a tricky intermingling of environmental stimuli, cultural and social expectations, rapid and not-always-intuitive changes in brain development, temperamental differences, genetic inheritance, and mindboggling brain plasticity. The seminar will start with a consideration of general themes and then move to a chronologic perspective. First, we approach child development as a dynamic force, one that simultaneously engages multiple domains: social/relational, cognitive, physical, and moral. We will then switch to examine stages of development in sequence, using our understanding of neurobiological, physical, cultural, and psychological factors to inform our assessment of how children change over time. Readings will include classic papers on development, textbook chapters that provide overviews of specific developmental stages, recently published research articles on genetic inheritance, selected contemporary children’s and young adult literature, personal memoirs, and short stories written about childhood.

How Stuff Works

Richard D. McCullough (Harvard John A. Paulson School of Engineering & Applied Sciences)

Freshman Seminar 50M 4 credits (fall term) Enrollment: Limited to 12

Note: There are no prerequisites for this seminar, and it does not require any scientific background.

The growth of electronics-based technology has completely revolutionized the world over the last 30 years, giving rise to new ways to be entertained, to communicate, and to work. Advancements in electronics have been primarily based on the chemistry and physics of new and improved electronic, magnetic, and optical properties of the underlying materials. This seminar will focus on discussing and understanding how stuff works with a particular focus on electronic and optical devices. In addition, we will learn about how magnetic stuff works, where color comes from, about modern fabrics, and other topics that students would find interesting. The seminar will also have the students read, research, and discuss what future innovations and technologies might be possible. Students will be encouraged to be active participants in prognostication. Students will have to write a paper on a future technology or innovation that they predict will be commonplace in the future or on the topic of how [fill in the blank here] works.
HUMAN RIGHTS AND THE GLOBAL SOUTH
Jacqueline Bhabha (Harvard T.H. Chan School of Public Health) and
Caroline M. Elkins (Department of History and of African and African American Studies)

Freshman Seminar 43C  4 credits (fall term)  Enrollment: Limited to 12

Human rights have become a global lingua franca, invoked by leaders and movements across the political, religious, and cultural spectrum. Because they can come into conflict with each other, human rights can serve to justify wars (to combat terrorists), religious intolerance (to counter fundamentalists), gender discrimination (to support religious tenets), and refusal of safe haven to refugees (to promote domestic human security). Despite more than a half a century of international law making and domestic enactment of human rights treaties, and despite a vibrant civil society that has embraced human rights principles worldwide, remedies for violations such as torture, rape, genocide, political or economic persecution, and crippling destitution remain elusive. This dilemma is particularly clear in situations of forced migration, when vulnerable populations are separated from individuals and institutions that traditionally provide support. This seminar will focus on the Global South and address key issues in contemporary human rights theory and practice through the lens of displaced, disenfranchised, and threatened individuals and groups. Members of the seminar will first study the philosophical and political traditions that led to codification of human rights. The seminar will then cover the legal frameworks of contemporary international human rights and humanitarian law and examine how they affect some of the most egregious human rights violations of the current period. Case studies of pivotal controversies and decisions will be examined to explore such questions as: Who is a refugee or an internally displaced person (IDP)? What is trafficking? When is deportation justified? What protections do civilians have in conflict settings? And what are major crimes of atrocity and war?

HUMAN RIGHTS, LAW, AND ADVOCACY
Susan H. Farbstein (Harvard Law School)

Freshman Seminar 41K  4 credits (fall term)  Enrollment: Limited to 12

Human rights practitioners confront numerous ethical, strategic, and legal dilemmas in their struggles for social justice. This freshman seminar explores the underlying legal framework in which human rights advocates operate, and then it uses specific case studies to consider the various challenges they must grapple with in their work. The seminar is designed to encourage students to critically evaluate the human rights movement, while offering an introduction to some of the essential tools and strategies used by human rights advocates, including advocacy, litigation, documentation, and report writing. Students will be asked to grapple with tough questions, such as: How can human rights be harnessed to successfully influence and change behavior? What does responsible, effective human rights advocacy look like? How do we engage without perpetuating power differentials along geopolitical, class, race, gender, and other lines? How do we find ways to work in collaboration with directly affected communities? What does it mean to be a human rights advocate working on abuses affecting individuals and communities remote from yourself? How do you balance broader advocacy goals with the needs of individual survivors or clients? How do you determine when to intervene and devote limited resources to a given issue?
Students will also consider a series of dynamics (e.g., north/south, insider/outsider, donor-donee, lawyer/non-lawyer) that influence how and why advocacy is formulated and received. Finally, the seminar considers the limits of the human rights paradigm and established methodologies, such as litigation and “naming and shaming,” and explores alternative sources and forms of advocacy, including the role of community lawyering in the human rights context.

**INSIGHTS FROM NARRATIVES OF ILLNESS**

Jerome E. Groopman (Harvard Medical School)

| Freshman Seminar 23K | 4 credits (spring term) | Enrollment: Limited to 12 |

A physician occupies a unique perch, regularly witnessing life’s great mysteries: the miracle of birth, the perplexing moment of death, and the struggle to find meaning in suffering. It is no wonder that narratives of illness have been of interest to both physician and non-physician writers. This seminar will examine and interrogate both literary and journalistic dimensions of medical writing. The investigation will be chronological, beginning with “classic” narratives by Tolstoy, Chekhov, and Kafka, and then moving on to more contemporary authors such as William Carlos Williams, Richard Selzer, Oliver Sacks, Susan Sontag, and Philip Roth. Controversial and contentious subjects are sought in these writings: the imbalance of power between physician and patient; how different religions frame the genesis and outcome of disease; the role of quackery, avarice, and ego in molding doctors’ behavior; whether character changes for better or worse when people face their mortality; what is normal and what is abnormal behavior based on culture, neuroscience, and individual vs. group norms. The presentation of illness in journalism will be studied in selected readings from *The New York Times* and Boston Globe’s Science sections, as well as periodicals like *The New Yorker*, *The New York Review of Books*, Harper’s, and *The Atlantic*. The members of the seminar will analyze how the media accurately present the science of medicine or play to “pop culture.” The seminar will study not only mainstream medical journalists, but also so-called alternative medical writers such as Andrew Weil. Patients with different diseases will be invited to speak to the members of the seminar about their experiences. Students will try their hands at different forms of medical writing, such as an editorial on physician-assisted suicide, that would appear in a newspaper and in a short story that describes a personal or family experience with illness and the medical system.
**INTRODUCTION TO TECHNOLOGY AND SOCIETY**
Venkatesh Narayananmurti (Harvard John A. Paulson School of Engineering & Applied Sciences)

**Freshman Seminar 22R** 4 credits (fall term)  Enrollment: Limited to 12

*Note: There are no prerequisites, but an interview may be required to have a balanced distribution of students spanning interests in the natural sciences, arts and humanities, and social sciences.*

From the digital revolution to social media, from global warming to sustainability, and from national security to renewable energy, technology plays a critical role in shaping our lives. This seminar explores concepts in physical sciences that span disciplines and examines broadly how technology shapes society, and vice versa. Through case studies, students will be exposed to the importance of a conceptual understanding of science (including social science) underpinning technology and the tradeoffs necessary in tackling the great challenges facing a global society. The seminar has a foundation of both physical and social science concepts, sparking interest and encouraging future investigation into how technology and society are interwoven and mutually dependent. Each class will start with a discussion of blog posts of current news related to technology, followed by selected areas of deeper engagement and discussion. Students will be involved through individual reflection and small team assignments to address specific problems in, for example, the case of “wiki leaks” and its implications for issues of privacy, diplomacy, and open government. The seminar is designed for physical science students to appreciate not only “how things work,” but “how the world works,” and for social science and arts and humanities students on not thinking of technology as a “black box.”

**JEFFERSON AND HAMILTON: DUELING AMERICAN VISIONS**
Annette Gordon-Reed (Harvard Law School and Department of History [FAS])

**Freshman Seminar 61H** 4 credits (fall term)  Enrollment: Limited to 12

It is often said that the United States is a country based upon ideas, rather than blood ties. Shortly after the end of the American Revolution, and during the ratification of the Constitution, it became apparent that the people who had helped to make the Revolution differed about exactly what ideas would define America’s experiment in self-government. Two men, Thomas Jefferson and Alexander Hamilton, symbolized the conflicting visions that emerged once the revolutionaries began the business of running a new country. Jefferson was Secretary of State and Hamilton was Secretary of Treasury in Washington’s cabinet. They started cordially enough, but their contrasting views about politics and government quickly hardened into personal enmity. Much to President Washington’s chagrin, they battled in cabinet meetings and—through surrogates and pseudonyms—in newspapers. Their clash helped create two-party politics in America, as each man attracted adherents to their respective visions of the future of the United States. Jefferson was the rural “man of the people,” anti-British to his core, and supporter of the French Revolution. Hamilton was the urban friend of the elites in society, admirer of the British government, and opponent of the French Revolution. Their arguments about the true nature of American society continue today. This seminar will examine Jefferson and Hamilton as men, the way they fought their battle, and the nature of Jeffersonian and Hamiltonian visions.

What did the men and their visions mean at the time, and what do they mean to us today?
KEEPING IT SIMPLE: CONSUMER FINANCIAL PROTECTION IN A COMPLEX WORLD
John Y. Campbell (Department of Economics)

Freshman Seminar 70Q  4 credits (fall term)  Enrollment: Limited to 12

People face a daunting array of problems in managing their financial lives. Taking out student loans, managing bank accounts and credit cards, financing a home purchase with a mortgage, and saving for retirement are all major challenges. There is evidence that many people lack the skills they need to meet these challenges. This seminar has three goals. The first objective is to give participants a basic grounding in financial literacy: principles of finance that we can use in our own lives. The second objective is to introduce research on the ways in which households use the financial system, emphasizing common financial mistakes and financial products that seem prone to misuse. We will learn to read papers from the academic economics literature, focusing on the papers’ central ideas and empirical findings. The third objective is to explore ways in which the financial system can be improved to make it easier and safer to use. We will discuss the role of financial advisers, technological solutions (“fintech”), and public policy interventions including required disclosures, default choices (“nudges”), and regulations restricting access to financial products. We will monitor the political debate over the role of the Consumer Financial Protection Bureau, the agency created in 2010 to coordinate federal consumer financial regulation.

LANDMARK CASES IN AMERICAN CONSTITUTIONAL HISTORY
Michael J. Klarman (Harvard Law School)

Freshman Seminar 70H  4 credits (fall term)  Enrollment: Limited to 12

This freshman seminar will cover landmark Supreme Court decisions in American history: Marbury v. Madison (1803) (origins of judicial review); Plessy v. Ferguson (1896) (racial segregation in railroad transportation); Korematsu v. United States (1944) (Japanese-American internment); Brown v. Board of Education (1954) (school segregation); Brown II (1955) (Brown’s remedial order); Engel v. Vitale (1962) (school prayer); Reynolds v. Sims (1964) (legislative malapportionment); Miranda v. Arizona (1966) (right against self-incrimination); Furman v. Georgia (1972) (death penalty); Roe v. Wade (1973) (abortion); Bakke v. Board of Regents (1978) (affirmative action); and Obergefell v. Hodges (2015) (gay marriage). Each session will discuss one case or one issue involving a couple of related cases. The seminar’s aim is to elucidate how the Supreme Court functions as a political institution—that is, to see how the Court’s decisions reflect the broader social and political context, and to consider the consequences of its rulings. The readings aim to present enough different angles from which to view the Court’s rulings to enable discussion of how a particular issue—such as the death penalty—became a topic of social controversy and of constitutional law, why Justices’ opinions were written as they were, and an evaluation of the decision’s reasoning and its consequences. Readings for each session will average about two hours. In addition to discussing the readings, students will be required to write three papers reacting to the readings, each of about four or five pages. Students will be afforded some degree of choice in the weeks for which they write papers.
FRESHMAN SEMINAR PROGRAM

LANGUAGE AND POLITICS; IDEOLOGY AND SOCIETY
Mark Richard (Department of Philosophy)

Freshman Seminar 61N 4 credits (fall term) Enrollment: Limited to 12

We will apply tools and techniques from philosophy to analyze the use and abuse of speech in politics and social interactions. Some of the work we will do involves analysis (What, exactly, is the difference between lying to someone and simply misleading her?) and work that is worth doing, in part because it will help us in thinking about normative questions (Is lying worse than merely misleading in some morally significant way?). Some of the work we will do involves recovering and analyzing arguments in philosophy and elsewhere about issues concerning speech—for example, arguments for and against the claim that certain sorts of speech (hate speech, pornography) ought to be restricted because of various harms. And some of the work we’ll do will require that we engage important—but fairly hairy—philosophical questions whether, for example, the (putative) fact that we see the world through one or another ideology makes knowledge impossible, or whether there are (interesting) absolute normative truths. The seminar as a whole is an introduction to philosophy that emphasizes philosophy’s ability to help us understand and criticize our social situation.

LANGUAGE AND PREHISTORY
Jay H. Jasanoff (Department of Linguistics)

Freshman Seminar 34X 4 credits (fall term) Enrollment: Limited to 12

It was discovered around 1800 that the major languages of Europe, along with the ancient languages of India and Iran, were descended from an unattested parent, formerly known as “Aryan” or “Indo-Germanic,” but today usually called Proto-Indo-European. The identification of the Indo-European family raised many questions, some purely linguistic (e.g., What was Proto-Indo-European like? Was it grammatically complex or “primitive?”) and some more far-reaching (e.g., Who were the speakers of Proto-Indo-European, and why did Indo-European languages spread so widely?). Questions of the first type eventually led to the birth of the new academic field of linguistics. Questions of the second type, however, misled some 19th- and early 20th-century intellectuals to posit a genetically and culturally superior Aryan “race.” Although this idea is now universally rejected, linguistic evidence still plays an important role in studies of the past. Recent debates about the origins of “Western civilization,” for example, center on the alleged presence of borrowed Egyptian words in Greek, while theories about the settlement of the Americas depend on supposed linguistic connections between the New World and other continents. This seminar will explore the use and misuse of such methods. What, if anything, does the fact that languages are related tell us about their speakers? How can we distinguish genuine cases of linguistic borrowing or “influence” from the kinds of resemblances that come about through pure chance? Answers to these and similar questions will be sought through case studies, with readings chosen to illustrate and contrast scholarly and unscholarly approaches. The work for the seminar will consist of readings, four or five short problem sets, and a final project with both written and oral components.
LANGUAGE: THE ORIGINS OF MEANING
Gennaro Chierchia (Department of Linguistics)

**Freshman Seminar 61Q**  4 credits (fall term)  Enrollment: Limited to 12

*Note: An interest in language and mind, and no fear of formal methods or the desire to overcome such fear.*

How do languages work? Why are they so distinctly human in the natural world? Is language a creation of our intelligence? Do we speak because we are smart, or is it the other way around? Birds produce sophisticated songs. Do bird songs mean anything? They do, in some way. They serve, for example, as predator warnings or mating calls. Humans too, like birds, can produce music. But for effective day-to-day communication (or to develop a scientific theory, and so on), we need languages with words and sentences—the kinds of languages that are unique to our species. Do all languages, in spite of looking so diverse, share a common structure? For example, in English, words fall into categories: Cat is a noun, meow is a verb. Do all languages have nouns and verbs? A fairly recent turning point in addressing these fundamental questions has been to view language as a computational device. That enables us to build effective models of how languages are structured so as to empower us with the ability to create meaning, which, in turn, sheds light, more and more, on who we are. This seminar will explore how natural languages come to create meaning and will invite participants to develop their own linguistic analyses through modern logical and computational tools.

LAW AND SOCIETY THROUGH THE CINEMATIC FRAME
Ofrit Liviatan (Department of Government)

**Freshman Seminar 40E**  4 credits (spring term)  Enrollment: Limited to 12

In this seminar, we will explore the interaction of law and society using the lens of film. The cinematic experience has become a key site through which the public understanding of law is produced, debated, and influenced. Driven, first and foremost, by market and audience considerations, law-related films often inject drama, contentious dimensions, and even misrepresentations into the portrayal of real events. Nonetheless, by raising awareness about legal themes that pervade the plot, these films offer valuable insights toward discovering social scientific perspectives on the manner in which law functions in everyday life. Hence, the seminar will not focus on legal doctrine or teach you the fundamentals of the legal profession. Rather, using films as a framework for discussion, we will study the law’s working in relation to the social, political, economic, and cultural environments in which it operates. Central thematic topics to be discussed include: the relationship between law, justice, and morality; how the law intervenes in social relations, and whether it is over-utilized as part of these relations; the dynamic between law and social change; if access to the legal process is equal for everyone; and the function of law in deeply divided societies. Throughout the semester, film viewing will occur outside class as part of your weekly preparation for the seminar. However, we will dedicate one class as a field trip to watch a law-related film together and analyze its themes through the socio-legal perspective.
LAW AT WORK: EMPLOYMENT RIGHTS IN THE AGE OF UBER
Benjamin I. Sachs (Harvard Law School)

Freshman Seminar 70V 4 credits (spring term) Enrollment: Limited to 12

Work is what most of us do with most of our time. Even before we start a career, we invest our energy in preparing for work and in imagining what work life will be. In this seminar, we explore the multiple ways that law defines what work is like in the contemporary United States. We start with the question of how much power an employer should have over an employee: Should it really be legal to fire someone for wearing the wrong tie or having the wrong spouse? We then debate the issue of appearance codes, asking whether an employer should be able to require women to wear makeup or to ban employees from having dreadlocks. We will explore the ways in which sexual orientation, gender identity, and immigration status impact employees’ rights at work. And we will ask whether it should ever be legal for an employer to hire employees of only one gender: Should Hooters restaurants, for example, be permitted to hire only women as waiters, or should those jobs be equally available to men? The seminar also will examine the way law polices the line between work and “life” by looking at the emerging right-to-disconnect. And the seminar will address the fundamental question of who exactly is an employee: Do Uber drivers or college football players count? The seminar concludes with a discussion of the ways technological changes are transforming work and, with it, the law that governs this central feature of our lives.

LIFE LESSONS FROM PROFESSIONAL KILLERS: WHAT WE CAN LEARN FROM THE SAMURAI
David Atherton (Department of East Asian Languages and Civilizations)

Freshman Seminar 61K 4 credits (fall term) Enrollment: Limited to 12

Note: No prior knowledge of Japan is required, and all readings will be in English.

Is it possible to fail successfully? Should we be more beholden to the needs of others or to our own ambitions? Is there a set moral standard by which we should live our lives? What should we be prepared to sacrifice for higher goals—and what if pursuing those goals causes suffering to others? When should we take a risk? Is there such a thing as an ideal human being? Questions such as these have animated the figure of the samurai for nearly a millennium, captivating imaginations both in Japan and around the globe. What is it about this figure that speaks to some of our deepest questions about how to live a model human life? In this seminar, we will explore together the many meanings people have invested in the Japanese warrior—from medieval epics to kabuki plays, modern novels to propaganda, manga and anime to global cinematic blockbusters. (Tom Cruise, anyone?) Our focus will be less on the historical realities of the samurai than on the ways people have chosen to imagine them—and to what ends. In the process, we will consider what we, ourselves, might learn from this complex, fraught, appealing, and possibly dangerous figure. Our “life lessons” from the samurai will include (among others) “How to be a spectacular failure,” “How to face the consequences of your actions,” “How to justify your existence,” “How to get revenge,” and “How to make your brand go global.”
THE LIFE PROJECT
Carrie Lambert-Beatty (Department of History of Art and Architecture and of Visual and Environmental Studies)

Freshman Seminar 30X 4 credits (fall term) Enrollment: Limited to 12

Note: This seminar is for anyone interested in contemporary art and culture, extremes of human behavior, or willpower and its limits.

Write down everything you do. Every day. Forever. Tie yourself to a friend by an eight-foot rope. Stay tied for a year. Cry, daily. These are not behavioral science experiments, spiritual practices, or psychiatric symptoms, but works of art. In the period from 1960 to the present, artists have frequently taken up everyday life as an artistic material akin to paint, language, or stone. This seminar will introduce contemporary art as a kind of research in its own right by exploring this quasi-genre, the Life Project. We will compare projects in contemporary art with a long and wide-ranging human history of extreme manipulations of living habits, spaces, and identities, and explore them in light of contemporary thinking about brain, behavior, and social relations, while considering the specific ways of knowing made possible by projects designed as art works. We will also learn by doing as each student prepares and undertakes a month-long Life Project.

MAKING THE GRADE? MIDDLE AND HIGH SCHOOL MATH EDUCATION IN THE US
Robin Gottlieb (Department of Mathematics)

Freshman Seminar 40P 4 credits (fall term) Enrollment: Limited to 12

Note: This is not a mathematics course and has no prerequisites. A special invitation is extended to students not planning to concentrate in math.

What are the goals of mathematics education at the middle and high school level, and how do these goals impact our evaluation of the success or failure of math education in America? Why does math education at these levels matter? What societal structures (historic, economic, political, cultural) impact mathematics education? How does math education, in turn, impact societal structures? We will also investigate differences in math education across different venues, both in the US and internationally. As the world changes, how do the goals of mathematics education change, and in what ways? Readings in preparation for weekly discussions will include a combination of newspaper articles, articles by experts in the field, and findings of large-scale national and international studies. This will help us make sense of the debate in the press, inside the mathematics and math education communities, and among policymakers about the state of mathematics education and what should be done about it. Students are expected to be active participants in seminar discussions. On occasion, students will (in pairs or small groups) be responsible for reporting out on different points of view and will debate issues from the perspective of a particular viewpoint (not necessarily their own) before staking out their own perspectives.
MEDIA IN AMERICAN POLITICS  
Matthew A. Baum (Harvard Kennedy School)  

Freshman Seminar 41R  4 credits (fall term)  Enrollment: Limited to 12

This seminar considers the degree to which Americans’ political opinions and actions are influenced by the media, as well as the influence of the media on public policy. Topics to be covered include the history of the mass media, recent trends in the media, theories of media effects, the implications for politics of changes in media (e.g., the rise of the Internet, social media, and partisan media), the ways in which the news shapes the public’s perceptions of the political world, campaign communication, how the media affect the manner in which public officials govern, and the general role of the media in the democratic process.

MEDICINE, LAW, AND ETHICS: AN INTRODUCTION  
Shahram Khoshbin (Harvard Medical School) with Laura Khoshbin  

Freshman Seminar 23L  4 credits (fall term)  Enrollment: Limited to 12

**Prerequisite:** All students are welcome, but this seminar is particularly geared to pre-medical and pre-law students. Students are advised that this seminar is intended to be introductory.

The seminar explores medical, legal, and ethical aspects of medical care, with particular attention to medical decision making at the beginning and end of life, participants in research on human subjects, human reproductive technologies, mental illness, and experimentation on animals. Historical background of present-day medical practices and relevant law will be discussed.

MEXICO: REVOLUTION, AUTHORITARIANISM AND DEMOCRACY: 100 YEARS  
Jorge I. Domínguez (Department of Government)  

Freshman Seminar 30V  4 credits (fall term)  Enrollment: Limited to 12

**Note:** please check the seminar website, https://canvas.harvard.edu/course/27313, for reading materials for the 1st class on August 30th.

Mexico, a US neighbor, over the past century experienced a prolonged violent revolutionary war and subsequent transformation, established one of the world’s longest-lived authoritarian regimes, and has been building a robust democratic political system. The combination of these three dramatic moments is rare worldwide. Most countries in the past century have had only one or two such moments, not all three. Why did Mexicans kill each other so relentlessly for so long? Why did they build, from the rulers’ perspective, perhaps the world’s most-effective authoritarian regime? Why was democratic transition so slow-moving, and what forms has it taken? What has been the role of statesmen and scoundrels, business executives and indigenous movements, political parties and the experience of existing on the US border? Examine why Mexico had no Lenin, no Adenauer, and no Mandela. Ponder why some Bishops in the 1920s ordered priests to refuse the sacraments, and why such an ethnically heterogeneous country lacks ethnic-based political parties. The seminar will also examine the deliberate collective wisdom of democratic politics, steering a successful transition since the late 1990s.
MIXING RELIGION AND POLITICS?
Harvey G. Cox, Jr. (Harvard Divinity School)

Freshman Seminar 70T 4 credits (spring term)  Enrollment: Limited to 12

Some of the best-known religious personalities in the last 100 years have had a notable impact on the political sphere. What was the nature of their spiritual basis, and how did they translate their various faith traditions into the coinage of public life? Who were their religious and political opponents? In this seminar, we will examine a number of figures, including Mahatma Gandhi, a Hindu who led the non-violent struggle against British imperial rule in India; Dietrich Bonhoeffer, the Lutheran pastor who was killed by the Nazis for his involvement in the plot to assassinate Hitler; Martin Luther King, Jr., a Baptist pastor who inspired both civil rights and peace movement in America; Dorothy Day, founder of Catholic Worker movement; and Pope Francis I.

MODERN CIVILIZATION AND THE RISE OF HEART DISEASE
Richard T. Lee (Department of Stem Cell and Regenerative Biology [FAS] and Harvard Medical School)

Freshman Seminar 21H 4 credits (fall term)  Enrollment: Limited to 12

Heart disease has plagued humans since ancient times, but only in the past century has heart disease become epidemic throughout the world. Despite great progress in prevention and therapy, heart disease will be the major cause of death and disability throughout the next century. Modernization of civilization has played a major role in the rise of heart disease. Conversely, advances in heart disease have powerfully changed society and our personal daily behavior. In this seminar, we will examine some of the major intersection events between heart disease and modern society over the past century and consider how this could change the next century in America and throughout the world. The topics include dramatic events like a young physician inserting a urinary drainage tube into his heart—ultimately generating the modern life-saving treatment for heart attacks. We will explore how major lifestyle factors such as tobacco, alcohol, exercise, and diet affect health, and how economics and politics often play a role in the complex relationship of health and society. In addition, we will visit a high-technology modern cardiology facility and watch some technology in action.
MONEY MATTERS
Evridiki Georganteli (Department of History of Art and Architecture)

Freshman Seminar 36X  4 credits (fall term)  Enrollment: Limited to 12

“Money Matters” aims to engage first-year students with the economics, politics, and aesthetics of one of the most fascinating and enduring aspects in human history. This seminar is a study of money in all its manifestations—from the early agrarian societies to the first financial crisis of the 21st-century global market. How have individuals and societies reacted to and used money in business, politics, and religion? What are the factors that shaped the metallic content and iconography of coins from the 7th-century BC to the end of the Gold Standard in the 20th-century? Why are early modern American and European banknotes so important for the study of social history? What are the links between art, literature, theatre, cinema, and money? Seminar meetings will take place at the Harvard College, the Harvard Carpenter Center for the Visual Arts, and the Harvard Art Museums, introducing students to the world-class Harvard Coin Collection and offering them the opportunity to handle research and discuss priceless artifacts. “Money Matters” is intended for students with an interest in history, art history, archaeology, political science, economics, and the study of world religions. Handling sessions, group discussions, and a short essay on a choice coin from the Harvard Coin Collections will offer students a sense of immediacy and accessibility to Harvard’s splendid numismatic holdings and the opportunity to understand why, indeed, money makes the world go ‘round.

MORALITY, LEADERSHIP, AND GRAY–AREA DECISIONS
Joseph L. Badaracco, Jr. (Harvard Business School)

Freshman Seminar 70K  4 credits (fall term)  Enrollment: Limited to 12

Everyone with serious responsibilities, at work and throughout their lives, faces gray-area decisions. In organizations, these highly uncertain, high stakes decisions are delegated upward, to men and women in leadership positions. They have to make final decisions on these problems, despite the gray, and these decisions test their competence and their humanity. This seminar offers a variety of important perspectives on gray-area problems and on ways to resolve them, responsibly and effectively. The seminar begins by examining gray-area problems in various professions and lines of work. Subsequent sessions focus on three different ways of resolving gray-area problems—in terms of accountability, character, and action. A typical session of the seminar will draw upon classic works of fiction, basic ideas in moral philosophy, and contemporary situations. These situations are typically described in short case studies involving men and women early in their careers, and they give students in the seminar the opportunity to grapple with these problems in personal terms by discussing what they would do in these situations. From time to time, students will write short papers that will be discussed in the seminar.
MUSICS IN MOTION
Kay Kaufman Shelemay (Department of Music and of African and African American Studies)

Freshman Seminar 61G  4 credits (spring term)  Enrollment: Limited to 12

Note: The class will include two hands-on music sessions and also attend two world music concerts. This seminar does not require a knowledge of Western musical notation. But it is hoped that each participant will bring to the class some knowledge of and experience with at least one musical tradition they have experienced and found meaningful in their own life, whether they are an expert participant or a casual listener.

Music is on the move, traveling across boundaries to reach new and broader audiences. As a result, most locales today support a broad array of the music of different histories and styles. Music is a medium of expression through which we pray and protest and remember and relax. At the same time, it provides a lens through which we can understand the most deeply felt aspects of human experience and mark changes in the world around us. This seminar will take a comparative approach to the sounds, settings, and significances of a cross-section of music traditions and their interaction across different cultural domains. Topics will include listening to and talking about music in a cross-cultural perspective; music’s mobility through human migration and virtual channels; the transformative role of musical performance in ritual, politics, and the marketplace; and the many ways in which music shapes individual and collective memory and identity. The seminar surveys a range of global styles from the classical to the popular.

MUSLIM VOICES IN CONTEMPORARY WORLD LITERATURES
Ali S. Asani (Committee on the Study of Religion)

Freshman Seminar 37Y  4 credits (fall term)  Enrollment: Limited to 12

This seminar will explore the range of issues that face contemporary Muslim societies through the perspective of short stories, novels, and poems written by Muslim authors from different parts of the world. Issues to be examined will include: the impact of colonialism, nationalism, and globalization; the politicization of Islam; the emergence of terrorism in the name of religion; the status of women and gender relations; attitudes toward the West and Western culture; the interaction between religion, race, and ethnicity; and the search for an “authentic” Islamic identity in the context of modernity. Readings will consist of Muslim authors from the Middle East, sub-Saharan Africa, South Asia, and the West (Europe and America). No prior knowledge of Islam is assumed. Assignments include compiling a portfolio of creative responses to the weekly readings using different media.
**MY GENES AND CANCER**  
Giovanni Parmigiani (Harvard T. H. Chan School of Public Health)

**Freshman Seminar 22H**  4 credits (spring term)  Enrollment: Limited to 12

**Recommended preparation:** There are no strict prerequisites, though some familiarity with the basic concepts of probability and genetics will be very helpful.

The role of a person’s genetic background in determining whether he or she will develop cancer, and when, is at the center of public discussions and active scientific investigations. Already, one’s genetic background is used in making life-altering health decision aimed at preventing the occurrence of cancer, as was recently the case with actor Angelina Jolie. This seminar will explore the extent to which current scientific knowledge can inform these types of decisions. The goals is to gain enough understanding of the scientific background to critically evaluate the discourse of a genetic counseling session. The seminar will proceed at first by laying essential foundations of genetic inheritance in humans; cancer evolutionary theories; statistical risk; and decision making in health care. Subsequently, students will read articles from the scientific and popular press and listen to podcasts. In class, we will discuss the readings. There is a good deal of reading and listening that everyone is expected to do ahead of class. Students can expect readings in genetics and statistics that will stretch them, though it will not always be necessary to understand all the technical details of every paper. Students can also expect to read opinion pieces with which they (as well as I) may disagree. Students will be required to present a summary of the assigned readings and lead class discussions. They will also be required to write one five-page double-spaced essay at the end of the class and to lead a class discussion on the topic of their papers. A typical paper is the critique of a scientific or popular press article, chosen from a list of suggested options or identified independently by the student, with my approval, during the first seven weeks of classes. Attendance is essential, not only for the students’ education, but for the benefit their contributions provide to the others.

**NEUROTOXICOLOGY: BIOLOGICAL EFFECTS OF ENVIRONMENTAL POISONS**  
S. Allen Counter (Harvard Medical School)

**Freshman Seminar 25P**  4 credits (spring term)  Enrollment: Limited to 15

**Prerequisite:** This seminar welcomes science and non-science concentrators. Some background in high school biological and physical sciences is useful and preferred.

This seminar will explore a wide range of environmental and man-made neurotoxic substances and their effects on human and animal populations. Particular attention will be given to pediatric exposure to neurotoxic agents and associated neurodevelopmental disabilities, as well as neurobehavioral and immunological changes. The seminar will examine the impact on children of lead (Pb) exposure from Pb glazing activities, household paints, and automobile petroleum emissions in the environment. Mercury poisoning through contaminated foods, cosmetics, vaccine preservatives, inorganic mercury in teething powders, elemental mercury from amalgamation, and magico-religious rituals will define another area of study. The basic neurophysiology and neurochemistry of a number of other neurotoxins, including arsenic, tetrodotoxin, saxitoxin, botulinum, curare, cocaine, and “nerve gas” will be reviewed. What dangers do these toxins pose? What can or should be done to prevent exposure?
NIETZSCHE
Mathias Risse (Harvard Kennedy School)

Freshman Seminar 31D 4 credits (fall term) Enrollment: Limited to 12

Friedrich Nietzsche addresses some of the big questions of human existence in a profoundly searching, but often disturbing, manner that continues to resonate with many. Hardly any philosopher (except Karl Marx) has exercised such a far-reaching and penetrating impact on intellectual life in the last 150 years or so. He has influenced thinkers and activists across the political spectrum. Nietzsche has always been of special interest to young people who have often appreciated the irreverence and freshness of his thought, as well as the often very high literary quality of his writing. In this seminar, we explore Nietzsche's moral and political philosophy, with emphasis on the themes he develops in his best-known and most accessible work, *The Genealogy of Morality*. The best-known themes from this book include the slave rebellion in morality, ressentiment, bad conscience, and ascetic ideals. However, we also read several other of Nietzsche's works, and do so chronologically (except that we begin with his autobiography, *Ecce Homo*, which Nietzsche wrote briefly before his mental collapses in 1889). The others works include *The Birth of Tragedy*, *The Gay Science*, *Beyond Good and Evil*, and *The Antichrist*. We do not read any secondary literature, though the instructor will recommend such literature as appropriate. The point is to become familiar with Nietzsche's writings, themselves, and to engage with his thought.

NO FEAR, NO HATE, NO PAIN? QUESTIONING IDENTITY AND ITS OTHERS IN MODERN LITERATURE ABOUT SPAIN
Daniel Aguirre-Oteiza (Department of Romance Languages and Literatures)

Freshman Seminar 61J 4 credits (fall term) Enrollment: Limited to 12

What’s the connection between fear, hate, pain, and identity? To what extent are our personal and collective identities shaped by received ideas of “others”? Does questioning “others” help us understand our ideas of culture, nation, and polity? How do these questions help us understand our position in current political debates? What’s the value of asking these questions when we read modern literature about Spain? Najat El Hachmi will guide us in her turn-of-the-century journey of emancipation between Morocco and Barcelona. A journalist going by the same name as novelist Javier Cercas will rely on fiction to tell the truth of an anonymous hero of the Spanish Civil War. Juan José Saer, an Argentine writer living in France, will tell us an unsettling narrative of survival set in the 16th-century about a 15-year-old cabin boy who was captured en route from Spain to the New World, and lived among cannibals for a decade. Carmen Laforet and Leopoldo Alas will spin tales of grit and self-reliance about a Catalan teenager and a Galician spinster in times of socio-political repression. Federico García Lorca’s poems will show us a kaleidoscopic view of Depression-era New York. Among the aims of this seminar is to discuss how autobiography, fiction, and poetry may challenge and entice readers to consent to or dissent from such representations. That is why this seminar also introduces students to different literary traditions, while providing them with essential skills of literary analysis, such as close reading and conceptual and historical framing.
The adult human mind is a unique phenomenon on Earth. Only people can ponder the causes of and cures for global warming or pancreatic cancer, and only they can think thoughts about molecules, genes, or democracy. Animals and human infants do not have most of the 500,000 concepts expressed by words in English. How does the human mind work, and how can we understand how it came to be, with its vast repertoire of concepts from which we routinely compose thoughts? In this seminar, we will explore together the origins and development of human knowledge in the individual child, in relation to two larger time scales: biological evolution and historical/cultural development. We will begin with several case studies, including those of the origin of the concepts natural number and living being. Each case study illustrates how all of the disciplines within the cognitive sciences, as well as anthropological, archeological, and historical disciplines shed light on these issues. The main focus will be on experimental work from psychology. We will then turn to case studies chosen by the participants in the seminar. By the end, seminar students will have a grasp of the theoretical debates about the nature of the human mind that have animated philosophy since the time of the Greek philosophers, as well as why considerations of the origins of the mind were always seen as central to these debates. Students taking this seminar should have an interest in learning about the cognitive sciences, which draw primarily from linguistics, analytic philosophy, computer science, and experimental psychology.

THE PHYSICS AND APPLIED PHYSICS FRESHMAN RESEARCH LABORATORY
Jene A. Golovchenko (Harvard John A. Paulson School of Engineering & Applied Sciences)

This year’s freshman seminar will enable students with musical training to bridge this knowledge with physics, mathematics, software, and hardware via experimentation with sound and music. Teams will be guided by faculty, staff, and a practicing software entrepreneur. The seminar will be accessible to students with an interest in science/engineering and who currently play a musical instrument, at least at an elementary level.
PHYSICS, MATH AND PUZZLES
Cumrun Vafa (Department of Physics)

Freshman Seminar 23P  4 credits (fall term)  Enrollment: Limited to 15

Prerequisite: This seminar is recommended for students with a strong background in both math and physics and with a keen interest in the relation between the two subjects.

Physics is a highly developed branch of science with a broad range of applications. Despite the complexity of the universe the fundamental laws of physics are rather simple, if viewed properly. This seminar will focus on intuitive, as well as mathematical, underpinnings of some of the fundamental laws of nature. The seminar will use mathematical puzzles to introduce the basic features of physical laws. Main aspects discussed include the role of symmetries, as well as the power of modern math, including abstract ideas in topology in unraveling the mysteries of the universe. Examples are drawn from diverse areas of physics, including string theory. The issue of why the universe is so big, as well as its potential explanation, is also discussed.

POLITICAL LEGITIMACY AND RESISTANCE: WHAT HAPPENED IN MONTAIGNE’S LIBRARY ON THE NIGHT OF OCTOBER 23, 1587, AND WHY SHOULD POLITICAL PHILOSOPHERS CARE?
Arthur I. Applbaum (Harvard Kennedy School)

Freshman Seminar 48K  4 credits (fall term)  Enrollment: Limited to 12

Note: All required reading will be in English.

After Henri of Navarre’s brilliant defeat of a Catholic army at the Battle of Coutras, the presumptive but contested Protestant heir to the French throne spent the night at the chateau of Michel de Montaigne, the great essayist and political adviser. Navarre then baffled expectations by not pressing his military advantage—he instead journeyed to visit Corisande, his mistress and Montaigne’s friend—even though the resistance theory of Navarre’s closest adviser, the young diplomat Philippe du Plessis-Mornay, would have justified a decisive campaign. By withdrawing his army from the field and not further challenging the authority of his cousin, King Henri III, Navarre failed to end the Eighth War of Religion, but may thereby have won his crown as Henri IV. Did Montaigne persuade Navarre to withdraw? What was his argument? Was Mornay with Navarre and Montaigne that night? What would Mornay have argued? The seminar will explore the theories of political legitimacy and justified resistance to authority developed by the persecuted Protestants of the day and trace the influence of these ideas about political obligation and religious conscience on some of the major figures in modern political philosophy, from Hobbes to Kant. Students should be prepared to engage in both historical detective work and philosophical reflection.

It’s always wonderful to learn how students take the classroom into real life and there is no greater satisfaction for a teacher than to know that a class one has taught has had a beneficial or stimulating impact. [It is] one of the many great strengths and benefits of the Freshman Seminar Program.
— CARTER ECKERT, INSTRUCTOR
PREDICTION: FROM ANCIENT OMENS TO MODERN COMPUTER SIMULATIONS

Alyssa A. Goodman (Department of Astronomy)

Freshman Seminar 27J 4 credits (fall term) Enrollment: Limited to 12

We will discuss the variety of approaches humans have taken to predicting their own future. Early weeks will focus on Omens, Oracles, Religion, and Prophecy. Next, we will move on to the so-called Scientific Revolution, exemplified by the work of Galileo and the Age of Exploration, enabled by John Harrison’s solution to finding longitude at sea. The last several weeks of the seminar will focus on predictive work in epidemiology, finance, and climate, and ultimately on work about the universe’s future. The final session will be a discussion of how computer models of health/wealth/climate combine to predict our future. Preparatory assignments will include readings and/or multimedia experiences relevant to the next week’s topic. Between meetings, students will be asked to make contributions to a seminar WordPress site, sometimes as answers to specific prompts (e.g., discuss a way in which Galileo’s predictions of Jupiter’s moons’ orbits might have affected Renaissance ideas about determinism vs. free will), and at other times, as links to and explanations of online (often multimedia) content that will enrich the (public) course record. A central goal in discussions will be to follow threads, such as finding the right level of skepticism when assessing the likely veracity of predictions, or considering sources of uncertainty, that connect the wide variety of predictive systems to be discussed. The seminar will offer one field trip to Harvard’s Collection of Historical Scientific Instruments.

PSYCHOACTIVE MOLECULES FROM BABYLON TO BREAKING BAD

Jon Clardy (Harvard Medical School)

Freshman Seminar 22C 4 credits (fall term) Enrollment: Limited to 12

Prerequisite: This seminar will be geared to students with a background in chemistry and biology.

Psychoactive molecules change brain function in ways that result in altered perception, mood, or consciousness, and while “psychoactive” hints at something illicit, examples range from caffeine to cocaine. After an introductory session, the seminar series begins with two meetings focused on foundational principles of brain chemistry. Subsequent meetings address four important molecular families: opioids, molecules like heroin, codeine, and Oxycontin; cannabinoids, molecules like THC, the active ingredient in marijuana and anandamide, our body’s version of THC; serotonin, a neurotransmitter regulated by antidepressants like Prozac, Cymbalta, Celexa, and Wellbutrin XL; and amphetamines, molecules like Albuterol, Adderall, XTC/Molly, and crystal meth. Our meetings will use case studies from recent newspaper, magazine, or popular science articles to explore larger questions about how these substances were discovered; how they alter our brain chemistry; how they are used, abused, and viewed today; and what they have taught us about how our brains work. These explorations often lead to unexpected connections. For example, the three seminars on opioids also explore our brain’s reward system; the nature of addiction; the connection between opioids, alcohol abuse, and genes; and the connection between opioid sensitivity and human bonding.
PUBLIC POLICY APPROACHES TO GLOBAL CLIMATE CHANGE  
Richard N. Cooper (Department of Economics)  

Freshman Seminar 44G  4 credits (spring term)  Enrollment: Limited to 14  

After a review of what is currently known about greenhouse gas emissions’ possible impact on climate and of how such knowledge is acquired, the seminar will explore the possible impact of climate change on social and economic conditions over the next century. Participants will investigate possible public policy responses to these developments, including actions both to adapt to and to mitigate climate change. What would be the costs of adaptation? Would an investment in mitigating the changes be worthwhile? The seminar will also address the requirements and possibilities for international cooperation in dealing with the problem of global climate change, and the solution that transcends national boundaries and competence. Throughout, the seminar will emphasize the analysis of complex problems in public policy. Members of the seminar will be exposed to concepts of cost-benefit analysis and considerations of uncertainty in decision making. The seminar will rely on student research.

QUANTUM MECHANICS FACE TO FACE  
Melissa Franklin (Department of Physics)  

Freshman Seminar 22S  4 credits (spring term)  Enrollment: Limited to 12  

This seminar is for students who would like to be introduced to the ideas of quantum mechanics without the rigor of mathematics, and who would be interested in learning by demonstration as well as spoken word and picture. We will be guided by a non-mathematical text, *Introducing Quantum Theory*; read short pieces by the creators of quantum theory, including Bohr, Einstein, Heisenberg, and Schrodinger; and each week watch and play with physics demonstrations of wave and particle physics. This seminar requires reading, watching short films, watching demonstrations in the lab, and visiting places at the university where quantum mechanics is used on a daily basis.
READING THE NOVELLA: FORM AND SUSPENSE IN SHORT FICTION
Jonathan H. Bolton (Department of Slavic Languages and Literatures)

Freshman Seminar 61U  4 credits (fall term)  Enrollment: Limited to 12

Short enough to read in a single sitting, but more complex and absorbing than short stories, novellas give us some of our most intense reading experiences. Indeed, many of the enduring classics of world literature, from Melville’s Benito Cereno to Chekhov’s The Duel, take advantage of the novella’s compression and acceleration of plot—features that are also suited to horror, mystery, and other forms of “genre” fiction. In this seminar, we will read some of the great masters of the novella form, including Anton Chekhov, Henry James, Leo Tolstoy, Alice Munro, and Katherine Anne Porter, as well as other examples from around the world, including Eastern Europe, China, and Japan. Readings of 50-125 pages a week (all of it in English) will allow us to work closely with some classics of modern fiction, going down to the level of word choice and sentence structure, but we’ll also consider the way authors build and sustain suspense, the different forms of narrative resolution, and other questions of plotting and structure. We will also talk about how to get the most out of your weekly reading experiences — I’ll ask you to set aside solitary time for your reading each week and, as far as possible, to read each novella in just one or two sittings. You’ll keep a reading journal, including 2-3 pages of unstructured writing each week; a number of creative assignments and a final paper will help you understand the choices made by authors as they shape their stories for this most demanding and exciting of fictional forms.

REGULATING ONLINE CONDUCT: SPEECH, PRIVACY, AND THE USE AND SHARING OF CONTENT
Christopher T. Bavitz (Harvard Law School)

Freshman Seminar 70Z  4 credits (fall term)  Enrollment: Limited to 12

In the course of a few short decades, the Internet has become integral to significant swaths of human experience. It has radically altered modes of interpersonal engagement, democratized access to tools of mass communication, and changed the role of gatekeepers that traditionally controlled access to music, video, and other media. Given the breadth of its impact, it is not surprising that the Internet has pushed the bounds of legal doctrines that govern speech, privacy, and the creation and exploitation of content. Mass-scale online distribution of copyrighted works tests the limits of legal doctrines developed in an era of physical copies. Age-old tensions between privacy and the right to free expression have been exacerbated in cases where one’s right to speak bumps up against the desire of another to keep information private. And, the ability to share—and, thus, to consume—extraordinary amounts of personal data has impacted government (which collects and uses data for purposes of law enforcement) and private companies (which collect and use data for purposes of advertising and monetization). This seminar will provide an overview of legal doctrines that govern the online conduct of individuals and institutional actors. It will address the rights and responsibilities of the intermediaries that mediate many of our online activities—social networks, cloud-based storage services, email providers, and the like. Students will consider old and new legal frameworks and the ways in which the law informs strategic decisions for those who operate online. The seminar will address some of the most important and complex policy debates of our day—regarding the proper scope of intellectual
property protection; the balance between a robust environment for online free expression and a desire to protect against harmful speech; and the ways in which the law addresses privacy vis-à-vis both government and private actors. Readings and in-class conversations will cover legal cases and case studies, offering students a high-level view of the technical, legal, and business landscape and allowing them to delve deeply into particularly difficult sets of problems concerning the regulation of online conduct.

**RESEARCH AT THE HARVARD FOREST—GLOBAL CHANGE ECOLOGY: FORESTS, ECOSYSTEM FUNCTION, AND THE FUTURE**

David R. Foster (Department of Organismic and Evolutionary Biology)

Fresman Seminar 21W  4 credits (spring term)  Enrollment: Limited to 11

*Note:* The seminar consists of four weekend-long field trips (Friday evening to Sunday) to the Harvard Forest, dates TBA. Transportation, accommodations, and meals at the Harvard Forest will be provided at no cost to the student.

Global change ecology is the line of scientific inquiry that integrates the responses of organisms, ecosystems, and their environments with changes in human activity and climate. This seminar will focus on state-of-the-art research, tools, and measurements used in evaluating and anticipating global change through ongoing studies at the Harvard Forest’s 3,500-acre outdoor laboratory in Petersham, Mass. Students will explore the key role that forests play in climate control and develop the necessary skills to present and discuss the ecological evidence for past and future global change. The seminar consists of four weekend-long field trips (Friday evening to Sunday) to the Harvard Forest, where students will visit various long-term ecological experiments, use long-term and real-time datasets to understand biosphere-atmosphere interactions, and discuss key scientific findings. The seminar will highlight integrated faculty studies of land-use history, forest dynamics, atmospheric exchange of carbon and water, plant phenology, invasive plants and pests, and the impacts of climatic warming on complex ecosystems. Transportation, accommodations, and meals at the Harvard Forest will be provided. A final, on-campus mini-symposium will give students an opportunity to present what they have learned in a public forum.
SEA MONSTERS
Peter R. Girguis (Department of Organismic and Evolutionary Biology)

Freshman Seminar 50V 4 credits (spring term) Enrollment: Limited to 12

Note: Required field trips related to the sea are included. There will be no cost to the student.

There have always been tales of sea monsters. For as long as we humans have ventured into the ocean, our imaginations have conjured images of serpents, krakens, leviathans, and other creatures, all of whom seem bent on the destruction of those who dare set foot into the sea. Humankind’s conviction that sea monsters are real is so powerful that, even today, rumors abound of sea monsters lurking in the depths. Indeed, every major religion—Eastern and Western—features sea monsters. Are these declarations true? Do giants roam the deep sea? Did the explorers of centuries ago see creatures from their small wooden boats that we do not see today? During this seminar, we will explore sea monsters through a social, spiritual, literary, and scientific “lens.” We will study the sea monsters that flourish on ancient maps to understand the minds of 16th-century scholars. We will examine the bodies of real sea monsters and consider the world in which such grotesque creatures might evolve. We will busy ourselves with tales of creatures from classic and contemporary literature. Most important, we will develop a better understanding of how humans perceive the world, and how our consciousness can simultaneously embrace our wildest dreams and cower from our greatest fears. Sea monsters, both real and imagined, tell us much about life in the deep sea, and even more about humankind.

A SENSE OF SPACE (AND TIME)
John E. Huth (Department of Physics)

Freshman Seminar 50Y 4 credits (fall term) Enrollment: Limited to 15

What is space? What is time? How have humans viewed these over the years? How are the views of these shaped by our environments and cultures? We often employ spatial metaphors for social situations—e.g. “they’re very close,” or “they split apart.” It seems that as concepts of space change, and our horizons are broadened, these changes are reflected in a shift in cultural awareness. In this seminar, we explore concepts of space in a number of cultures: Pacific Islanders, Western Apache, Brazilian Rain forest, to name a few. The human mechanism of spatial cognition is examined, along with the reuse of these parts of the mind in future planning, memory, and imagination. As the seminar progresses, we focus in on the shifts of the concepts of space in Western culture—starting with ancient Greeks and Egyptians. We examine the period when astronomy and astrology were practiced side-by-side, and then turn to the world of Dante Alighieri, where space was married to concepts of morality and culture. Finally, the development of physics and astronomy from Galileo to the present has seen seismic shifts in the concept of space-time. These in turn were reflected in broader cultural shifts.
THE SEVEN SINS OF MEMORY
Daniel L. Schacter (Department of Psychology)

How do we remember and why do we forget? Can we trust our memories? How is memory affected by misinformation such as “fake news”? Do smartphones and the Internet help our memories or hurt them? Are traumatic experiences especially well remembered, or are they poorly remembered? What are the best ways to study for exams? This seminar will address these and other questions related to the fallibility of memory by considering evidence from studies of healthy people with normal memories, brain-damaged patients who show dramatic forgetting or striking memory distortions, and neuroimaging studies that reveal brain regions and networks that are linked to memory. The framework for the seminar is provided by the idea that the misdeeds of memory can be classified into seven basic “sins.” Three of the memory sins refer to different kinds of forgetting (transience, absent-mindedness, and blocking); three refer to different kinds of distortions or false memories (misattribution, suggestibility, and bias); and the final sin refers to intrusive recollections (persistence). We will consider how the memory sins impact everyday life and discuss the possibility that they can be conceptualized as by-products of adaptive features of memory, rather than as flaws in the system or blunders made by Mother Nature during evolution. Related, we will also discuss the interplay between remembering past experiences and imagining future experiences, which provides clues regarding the nature and fallibility of memory.
SEX, MONEY, AND POWER IN THE POSTCOLONIAL WORLD
George P. Meiu (Department of Anthropology and of African and African American Studies)

Freshman Seminar 70S  4 credits (spring term)  Enrollment: Limited to 12

With globalization, sex—everywhere—has become more central to who we are as citizens and consumers, how we gain rights and resources, and how we relate to others as members of a specific race, ethnicity, region, or culture. Worldwide, states invest or disinvest in people according to how they have sex, adopt gender identities, or sustain sexual morality. Terrorist organizations claim to use violence to reestablish bastions of piety and sexual propriety; various populist movements imagine immigrants and refugees to threaten their societies, in part, by failing to uphold the sexual norms of adopting countries; and transnational NGOs and activists seek to rescue and rehabilitate sex workers, gays, lesbians, transsexuals, and other people who are vulnerable because of their sexualities. The growing importance of sex to a global consumer culture only heightens the rush to secure societies from the so-called “perversions of globalization.” Tourists now travel for sex to various destinations in Africa, Asia, Latin America, and the Caribbean; poor, unemployed men and women, in former colonies, sometimes use sex as a means of enrichment and empowerment; and amidst the rise of religious fundamentalisms, commodity ads incite youths to consume sex, along with other goods, to build authentic selves. In this seminar, we ask: Why does sexuality become so central to how we imagine our world and futures? Why is sex so important in defining us, as subjects and populations? And how do older colonial stereotypes of race, ethnicity, and culture shape sexuality politics in the new global order? To address these questions, we will read about how sex relates to politics and the economies in countries such as Brazil, Kenya, Namibia, Nigeria, and New Guinea; we will watch documentaries about prostitution and sex tourism in Africa and the Caribbean; and we will jointly curate a small museum exhibit about sexuality in the postcolonial world.

SHAPE SHIFTING YOUR REALITY
Nora Schultz (Department of Visual and Environmental Studies)

Freshman Seminar 61R  4 credits (fall term)  Enrollment: Limited to 12

Note: There will be a required trip to New York City. All trip expenses will be covered by the program.

This seminar investigates various forms of art making in order to answer one central question: how to process the experiences of daily life by expressing them in a work of art. The creative parts of the seminar will take place inside the sculpture studio of VES, but collecting the materials to use will happen outside it, as we gather “found objects” at places like the Harvard Recycling Center, which will, in turn, offer us new perspectives on the use of materials in our everyday life at Harvard and beyond. On a field trip to New York City, we will visit different locations where an artwork and its urban environment have influenced one another. The seminar includes a broad introduction to various methodologies of artistic creation, not only tangible but also intangible (e.g., sound recordings). Weekly practical and reading assignments are required. By end of the semester, we will present our works in an informal exhibition/intervention/happening.
SICK AND TIRED OF BEING SICK AND TIRED: HEALTH DISPARITIES AND AFRICAN AMERICANS
Evelynn M. Hammonds (Department of African and African American Studies and of the History of Science)

Freshman Seminar 41D 4 credits (fall term) Enrollment: Limited to 15

Since the arrival of Africans from Africa to America, their health and health care has been a critical issue for the nation. From the era of slavery to the present, African Americans have been disproportionately burdened by disease and ill health. Health disparities are the “inequalities that occur in the provision of health care and access to health care across different racial, ethnic and socioeconomic groups.” This seminar examines this issue over the long timeframe from the 17th-century to the present. Currently, compared to the white population, African Americans are at an overall greater risk for many serious and life threatening diseases. This seminar will examine how these disparities emerged over time. It will explore the strategies and practices that African Americans employed to improve their health care. It will also examine, the ways that cities, states, and the federal government supported or ignored the health of African Americans.

THE SILK ROAD AS HISTORY, CULTURE, AND POLITICS
Mark C. Elliott (Department of East Asian Languages and Civilizations and of History)

Freshman Seminar 61M 4 credits (spring term) Enrollment: Limited to 12

Note: Students are required to participate in two class excursions, one to the Harvard Art Museums and another to the Museum of Fine Arts. There will also be two required evening film screenings.

In 1923, Harvard’s Fogg Museum of Art sought to add to its collections by sending Langdon Warner, the University’s first professor of Asian art, on an expedition to gather objects from the fabled “Silk Road”—objects that are part of the Museum’s permanent display even today. With this connection as a jumping-off point, the seminar will explore the history of the ancient trading routes linking East and West and the ways in which different Silk Road narratives have served as cultural and political capital around the world. Warner was, in fact, following in the footsteps of numerous other Westerners, who had for 50 years been investigating the geography, history, and languages of greater Turkestan (i.e., Central Asia). Who were these men, what drove their curiosity, what did they find, and where is it now? How did the Silk Road that they brought into existence come to be such an important part of the popular imagination of the ancient world, and of the ongoing re-imagination of modern geopolitics? In examining these questions, students will learn the skills needed for archival research, get a firsthand introduction to museum preservation, and study current attitudes toward cultural patrimony.
SKEPTICISM AND KNOWLEDGE
Catherine Z. Elgin (Harvard Graduate School of Education)

Freshman Seminar 31J 4 credits (fall term) Enrollment: Limited to 12

What can we know and how can we know it? Skeptics argue that knowledge is impossible. Some non-skeptics dismiss skeptical arguments as idle. But the motivation for Descartes’ Meditations is his realization that, although he had received the best education in the world, much of what he had learned turned out to be false. This led him to embark on a systematic investigation to discover whether knowledge is possible. Harvard freshmen face a similar predicament. Having dutifully learned what they were taught, and evidently learned it well, some find themselves questioning its cognitive adequacy. Much of what they learned in school seems superficial, incomplete, oversimplified, or incorrect. Is it possible to know the way the world is? Can I know that I am not a brain in a vat being manipulated into thinking that I am an embodied human being? Can I know that the Louisiana Purchase occurred in 1803, that electrons have negative charge, that Hamlet is a masterpiece, that the sun will rise tomorrow? In this seminar, we will study skeptical arguments and responses to skepticism. The goal is to discover the nature and scope of knowledge. Students write a one-page response paper each week and three five-page papers during the term. Each student will be expected to introduce the material to be discussed at one meeting of the seminar.

SOFT POWER: THE 21ST-CENTURY ART MUSEUM
Ethan W. Lasser (Department of History of Art and Architecture) and Rachel M. Saunders (Department of East Asian Languages and Civilizations)

Freshman Seminar 61X 4 credits (fall term) Enrollment: Limited to 12

Note: The seminar will take place at the Harvard Art Museums and includes required field trips to local institutions and multiple meetings with museum leaders in Boston.

What are museums good for in the 21st-century? Should they be temples of scholarship or purveyors of popular entertainment? Are they places in which we seek contemplative refuge in the experience of “beauty,” or are they viable sites in which to work for social justice? Should we be investing public funds in museums, or are they a luxury best supported by private sources? To whom do museum collections “belong?” Art museums today are thriving, yet they have never faced so many contentious questions about their role and responsibilities. Co-led by two curators at the Harvard Art Museums, this seminar will consider the big issues facing art museums across the globe today. The seminar is intended for both long-time museum-goers, as well as those who have never set foot in an art gallery. We begin with a primer on museum basics—the work of collecting, conservation, display, and research—and an introduction to the many resources of the Harvard Art Museums. In the second half of the seminar, we consider the challenges that face both august, traditional institutions—like the Metropolitan Museum of Art in New York—as well as younger, start-up museums like the private/public collections being established across Asia.
SPANISH-AMERICAN CULTURE AND SOCIETY IN THE 1960s—THE LAST UTOPIA?
Diana Sorensen (Department of Romance Languages and Literatures and of Comparative Literature)

Freshman Seminar 61C 4 credits (fall term)  Enrollment: Limited to 12

What was it like to be a Latin American student in the '60s? How did that period of social, political and cultural transformation come into being, and what have we inherited from it? We will begin with the Cuban Revolution, and then move across the hemisphere to see its art, fashion, music, film, literature, and other cultural forms.

THE SUPREME COURT AND SOCIAL CHANGE: LESSONS FROM LANDMARK CASES AND KEY REFORM MOVEMENTS
Tomiko Brown-Nagin (Harvard Law School & Department of History [FAS])

Freshman Seminar 71C 4 credits (spring term)  Enrollment: Limited to 12

Justice Oliver Wendell Holmes famously wrote: “The life of the law has not been logic; it has been experience.” This seminar considers the idea of experience—including events external to legal doctrine—affecting the law. It discusses how social movements—groups of citizens mobilized in support of a cause—deploy the Constitution and other types of rights talk to “frame” disputes and move forward their agendas. Seminar participants will discuss how movements crystallize grievances, mobilize supporters, demobilize antagonists, and attract bystander support by referencing constitutional rights and other ideas about law. It also considers the effectiveness of movements’ legal strategies. The seminar considers these questions in relation to the abolitionist, woman suffrage, civil rights, women’s rights, anti-poverty, same-sex marriage, and Tea Party movements, among other recent reform efforts.

THE SUPREME COURT IN US HISTORY
Richard H. Fallon, Jr. (Harvard Law School)

Freshman Seminar 40I 4 credits (fall term)  Enrollment: Limited to 15

The Supreme Court of the United States has often been described as the world’s most powerful court. But the Court has not always enjoyed high prestige or unquestioned authority. During the early years of US history, its role was uncertain, its authority precarious. Since then, the Court’s significance has waxed and occasionally waned, with the variations typically depending on surrounding currents in the nation’s social and political history. This seminar will examine the history of the Supreme Court, from the nation’s founding to the present day. Main subjects of concern will involve the relation between constitutional law and ordinary politics, and the ways in which they influence one another. Readings for the seminar will include books and articles by historians, political scientists, and legal scholars, as well as selected Supreme Court opinions.
THE SURPRISING SCIENCE OF HAPPINESS
Nancy L. Etcoff (Harvard Medical School)

Freshman Seminar 24K 4 credits (spring term) Enrollment: Limited to 15

After a century of studying how to cure mental illness, scientists have started to explore what makes us happy. What have they discovered? In this seminar, we will critically examine the findings from the new science of happiness, including research in cognitive science, evolutionary biology, psychology, and neuroscience and reveal how this work alters our understanding of what happiness is, the optimal ways to achieve and increase it, the role of circumstance in its occurrence, its effect on our physical health, and its place in human nature. We will consider the notion of a biologically determined “hedonic set point,” and question whether there are people who “have started in life with a bottle or two of champagne inscribed to their credit; whilst others seem to have been born close to the pain threshold,” as William James noted over a century ago. We will examine how the brain's reward circuitry generates feelings of pleasure, desire, comfort, and craving, and the ways it propels us to achieve biologically significant goals. Among the questions we will consider are: What is happiness for? Can one make oneself happier by conscious effort? What are some of the myths about happiness? Finally, is happiness a worthy goal for one’s life? Highlighting the most rigorous and promising work in this field, we will attempt to construct a “happiness toolkit.” The seminar will be didactic, interactive, and experiential and provide an introduction to a burgeoning field of scientific inquiry.

THE TEMPORAL UNIVERSE
Jonathan E. Grindlay (Department of Astronomy)

Freshman Seminar 50I 4 credits (fall term) Enrollment: Limited to 12

Note: This seminar is open to all but may be of particular interest to those considering Astronomy, Physics, or Engineering concentrations.

The universe is not static, but rather stars and entire galaxies are evolving as revealed by their variability on timescales ranging from milliseconds for collapsed stars (neutron stars and black holes) to gigayears for stars and galaxies. In this seminar, we will explore stars and nuclei of galaxies through variability—from how brightness variability of stars with binary companions measured with small telescopes measures star masses and radii, to the extremes of variability of stars that undergo repeated huge flares, to enormously luminous variations from accretion onto gargantuan black holes in the nuclei of “active galaxies” (Blazars and Quasars). We will use the Clay Telescope on the Science Center roof to make some repeated observations (from the 8th-floor Astronomy Lab) of several types of variable stars and accretion-powered binaries and deduce what life would be like if either were our sun. From a Blazar, we will observe historical outbursts that occasionally change brightness to exceed its host galaxy by a factor of about 100, by using the digitized brightness measures on thousands of glass-plate images taken by Harvard telescopes from 1885–1992 and now digitized and online from our Digital Access to a Sky Century @ Harvard (DASCH) project. The seminar will include readings from an introductory astronomy text, as well as both popular and journal articles and the short books Black Hole (Bartusiak) and Black Hole Blues (Levin). Students will use astronomical software to measure stellar brightness and variability from telescope images, as well as learn temporal analysis techniques with applications to other disciplines. Students discuss in class readings and observations conducted and write short papers on their observations and deductions.
THINKING ABOUT THE UNTHINKABLE: LOVE, EMOTION AND HARD TIMES IN LITERATURE
Rita Goldberg (Department of Comparative Literature)

This seminar is about remembering, responding to, and reflecting about experiences that we describe as unspeakable or unthinkable, yet that somehow must be expressed in language, because language of one kind or another is all we have. We’ll explore some literary moments centered largely on young people in bad situations, starting in the mid-18th-century, when writers became obsessed with the feeling response as a measure of virtue (often manifested in tears), and continuing with readings of Blake and Dickens. In the second half of the seminar, we’ll turn to memory, as expressed in the form of the memoir. We’ll start with two memoirs of slavery by Frederick Douglass and Harriet Jacobs. We will spend another few weeks on memoirs of the Holocaust by people who were children in those years, and we’ll look at Freud and other more recent writers on trauma and memory. Students will be expected to participate actively in the seminar, to write a page or two weekly on the readings, and to be responsible for opening one week of discussion. There will be a short concluding paper. It will not be all darkness and gloom. Hovering over the seminar is the spirit of Anne Frank and the sense that, even in these darkest of narratives, the flame of life can continue to burn, and that words can recover their power, especially for the young.

THIS IS THE END OF THE WORLD: SOCIAL DISRUPTIONS, ZOMBIE APOCALYPSES, AND NATURAL CATASTROPHES IN CULTURAL AND RELIGIOUS TRADITIONS
Giovanni B. Bazzana (Harvard Divinity School)

For millennia, the end of the world has been feared, imagined, and exorcized by gifted writers, religious leaders, and intellectuals from the most diverse cultural backgrounds. Scholars have even suggested that—over the last few decades—such an apocalyptic worldview has become hegemonic by appearing in an almost endless number of very popular media, stretching from blockbuster movies to comic books. This seminar will explore the cultural reasons behind this paradoxical attraction of humans toward fantasies detailing the end of the known world in catastrophic and often terrorizing colors. Imaginations of the end seem to have begun with the birth of the apocalyptic literary genre in ancient Judaism and Christianity. The seminar will follow some trajectories of these fantasies by comparing and contrasting exoteric ancient and medieval religious texts with modern and contemporary novels and movies. The ultimate goal will be to see how the rupture of social bonds, zombie or demonic attacks, and natural disasters are preferential occasions to reflect on the relationship of humans with nature, with the supernatural, and with each other. A few scholarly essays will be assigned, but the largest part of the seminar will be occupied by the direct reading, viewing, and discussion of primary materials (with the final opportunity to write your own tale of “the end of the world”).
### TIME FOR SLEEP: IMPACT OF SLEEP DEFICIENCY AND CIRCADIAN DISRUPTION IN OUR 24/7 CULTURE

**Charles A. Czeisler (Harvard Medical School)**

**Freshman Seminar 22D 4 credits (fall term)  Enrollment: Limited to 12**

America is a sleep-starved nation. The Institute of Medicine estimates that between 50 million and 70 million Americans are suffering from chronic sleep deficiency or sleep disorders, increasing their risk of weight gain, heart ailments, mood disorders, errors, and catastrophic road accidents that kill more than 7,000 and maim more than 50,000 Americans annually. Children of all ages are sleeping about two hours less per night than they did in prior generations, rendering them hyperactive and irritable, and compromising their ability to sustain attention and learn in school. This hyperactivity leads many sleep-deprived children to be misdiagnosed with ADHD and treated for years with amphetamines and other stimulants that further disrupt sleep. Yet, prevailing cultural attitudes lead us all to undervalue sleep and lionize all-nighters, such that most patients with sleep disorders remain undiagnosed and untreated. This seminar will explore the function of sleep, the physiologic factors that regulate sleep and circadian rhythms, the impact of exposure to artificial light on sleep and circadian rhythms, historical and cultural differences in sleep habits, and the consequences of sleep deficiency, circadian disruption, and sleep disorders on both the brain and the body. Public policy issues, such as school start times, limits on resident physician work hours, drowsy driving laws, and proposed regulations to screen transportation workers for sleep disorders will be debated. Students will be encouraged to track their own sleep patterns throughout the semester, identify the personal, structural, and cultural barriers to maintaining healthy sleep while in college, and propose strategies to improve sleep health at Harvard College, the local community, and the nation.

### TO FAR PLACES: LITERATURE OF JOURNEY AND QUEST

**William A. Graham (Department of Near Eastern Languages and Civilizations)**

**Freshman Seminar 36P 4 credits (fall term)  Enrollment: Limited to 12**

In this seminar, we read a highly diverse group of engaging texts in English translation. Most are fictional, mythic, or epic texts. All engage the theme of journey, quest, pilgrimage, passage, or sojourning. We will be attentive to enduring themes and basic questions associated with this varied literature, including parting and return, separation and reintegration, homelessness and homecoming, epic adventure and exploration, trial and suffering, loss and recovery, heroic action, tragedy, pathos, orientation and disorientation, internal and external travel, faith and courage, aesthetic vision, heightened perception, self-discovery and growth, companionship, loneliness, risk, and death. Readings will be selected from among the following: Gilgamesh, J.R.R. Tolkien’s The Hobbit, Homer’s The Odyssey, Virgil’s Aeneid, Matsuo Basho’s Narrow Road to Oku, Hermann Hesse’s Siddhartha, Thomas Mann’s Death in Venice, Rudyard Kipling’s The Man Who Would be King, Ashvagosha’s Life of the Buddha, Shusaku Endo’s Deep River, Annie Dillard’s Pilgrim at Tinker Creek, John Hersey’s A Single Pebble, Charles Frazier’s Cold Mountain, Fariduddin Attar’s Conference of the Birds, Naguib Mahfouz’s Journey of Ibn Fattouma, Cormac McCarthy’s The Road, Rachel Joyce’s The Unlikely Pilgrimage of Harold Fry, and Italo Calvino’s Invisible Cities.
THE TRANSFORMATION OF MARKETING
Elie Ofek (Harvard Business School)

**Freshman Seminar 40D  4 credits (spring term)  Enrollment: Limited to 15**

Marketing, as you will find in this seminar, refers to the set of activities needed to form and sustain a healthy business by fostering meaningful exchanges between the organization and its chosen customers. Marketing helps create value for consumers and extract a share of that value for the organization. We will spend time understanding the fundamentals of marketing management and examine how recent economic, technological, cultural, and societal developments have affected the marketing field. We will first cover the central themes of customer behavior, strategic marketing analysis, innovation forecasting, and brand management. Then we will explore how marketing has dramatically evolved in recent years due to: the digital and social-media revolution; firms’ desire to globalize and the cross-cultural challenges this entails; the increasingly consumer-oriented health care setting; and societal trends calling on companies to exhibit greater social responsibility. We will close the seminar by examining issues of marketing leadership. In examining these themes, we will draw upon research from the domains of psychology, sociology, and economics. Each session will have assigned pre-readings that may include book chapters, articles, case studies, and exercises. The discussion and material covered in class will rely upon these readings. During the term, each student will identify a marketing phenomenon they find intriguing and that reflects concepts covered in class. Students will prepare a one-page summary of this business phenomenon and communicate it in a short presentation. The final paper for the seminar requires students to analyze a case study and turn in a short write-up.

TRYING SOCRATES IN THE AGE OF TRUMP
Russell E. Jones (Department of Philosophy)

**Freshman Seminar 61D  4 credits (spring term)  Enrollment: Limited to 12**

We find ourselves in the middle of fierce political debates. Should the common folk have political power, or should it be concentrated in the hands of an elite? Is our national interest best served by looking inward and directing our resources toward local concerns, or by thinking globally about both threats and opportunities? How do we balance concerns for economic growth, humanistic understanding, religious freedom, and scientific advancement? Our answers to such questions are enormously consequential, and even people of good will can find themselves in heated disagreement, labeling opponents as the enemy, and striving to drive them and their ideas from the public square. The Athenians of 2,400 years ago didn’t conduct their political battles with tweets and hacks and super PACs, but they would easily recognize our battles as versions of their own, fought over much the same ground. At a particularly heated time, they used the lethal power of the courts to silence Socrates, one of their own. Our task is forensic. We’ll assemble the available evidence to determine why the Athenians killed Socrates. His views were complex—certainly he doesn’t align neatly with any of our own major political parties, and he’s difficult to categorize even in the context of ancient Athens. So, what was so offensive or threatening about him as to provoke such extreme measures? Once we’ve assembled our evidence, we’ll formally try Socrates in absentia for ourselves. Was he guilty? And what should be done with people who spread dangerous ideas?
THE UNIVERSE’S HIDDEN DIMENSIONS
Lisa Randall (Department of Physics)

Freshman Seminar 26J  4 credits (spring term)  Enrollment: Limited to 12

This seminar will give an overview and introduction to modern physics. As with the book Warped Passages, on which it will be loosely based, the seminar will first consider the revolutionary developments of the early 20th-century: quantum mechanics and general relativity. Then it will investigate the key concepts that separated these developments from the physical theories that previously existed. We will delve into modern particle physics and how theory and experiment culminated in the “Standard Model of particle physics,” which physicists use today. We will move beyond the Standard Model into more speculative arenas, including supersymmetry, string theory, and theories of extra dimensions of space. We will consider the motivations underlying these theories, their current status, and how we might hope to test some of the underlying ideas in the near future.

WHAT DO YOU SEE IN THE NIGHT SKY?
Roger R. Fu (Department of Earth and Planetary Sciences)

Freshman Seminar 50R  4 credits (fall term)  Enrollment: Limited to 12

Note: A five-hour field trip to observe the sky away from city lights is required. No previous knowledge of astronomy or celestial mechanics is required.

People around the world observe the same basic celestial phenomena—the rise and set of stars, the changing phases of the moon, the occasional bewildering eclipse. But cultures have come to interpret these signs very differently, giving rise to diverse calendar systems and mythological frameworks. For instance, the position of the sun, the visibility of star formations, and the lunar cycle have all been used to define the concept of the year, sometimes with more than one definition operating in a single culture. We will perform a survey of traditional astronomical systems, highlighting the original aspects of each and trying to understand the origin of differences. Why were some observations considered more significant than others? (And which is more important, the shape of the moon or the identity of stars around it?) How did mundane pressures, such as the need to sow and reap, influence how cultures tracked celestial motion? We will end with a more detailed exploration of the early Western and Arab astronomy. What specific advancements and conditions allowed them ultimately to “get it right?”
WHAT IS COLLEGE, AND WHAT IS IT FOR?
Paul J. Barreira (Harvard Medical School and the Faculty of Arts & Sciences)

Freshman Seminar 30O  4 credits (spring term)  Enrollment: Limited to 8

In the fall of 2012, more than 20 million students enrolled in US colleges and universities. Who are these students, and why do they go to college? What are they seeking? This seminar asks students to think and write critically about higher education, considering, in Clark Kerr’s famous phrase, “the uses of the university,” from a variety of perspectives: historical, sociological, economic, and developmental. As they do so, the seminar will address the questions that have faced students, administrators, and public legislatures for more than three centuries: What constitutes a liberal arts education? What are its goals? How should students be assessed? What role does extracurricular life, such as sports and fraternities and sororities, play in a college education? Does a college degree certify a vocational education, an intellectual one, or a moral one?

WHAT IS THE INTERNET, AND WHAT WILL IT BECOME?

Freshman Seminar 50N  4 credits (fall term)  Enrollment: Limited to 12

The Internet has become a central part of our everyday life, a conduit for commerce, and part of the connecting tissue of our social networks—from email to the Web to the way we get entertainment, run videoconferences, shop, or find information. But what, exactly, is the Internet? Who runs it, how did it happen, and what is its future? How does it change our way of finding information, of working, or of seeing the world? What are the trends, in technology, policy, and law that will form the Internet and, by extension, our lives going forward? This seminar will look at all these questions, and some others. We will start by looking at the history of the Internet—how it happened, what design choices informed its construction, and how the various standards that define this network of networks were decided, adopted, and enforced. We will then look at various controversies that center on the current Internet, including issues like: Who should govern it? What influence national laws should have on this seemingly borderless entity? And what is the role of encryption in communication, security, and privacy? We will then turn to some possible futures, and the implications of these futures on the way we live our networked lives. Will the Internet change the way we work? The way we vote? The way we think? This seminar does not pre-suppose any knowledge of how the Internet works or how it is governed. While there will be some discussion of the technical aspects of networking, computer hardware, and computer software, all that will be needed to understand the issues will be presented as part of the seminar.
“WHERE ARE YOU FROM?” ANCESTRY IN THE AGE OF GENOMICS
David A. Haig (Department of Organismic and Evolutionary Biology)

Freshman Seminar 50D 4 credits (spring term)  Enrollment: Limited to 12

A human interest in ancestry and kinship is found in most cultures. This interest is not a construct of the modern age, but recent advances in genetics can now provide a wealth of previously unavailable information about our genetic descent. The seminar will discuss examples of what genetics can tell us about where we are from and address the kinds of questions genetics can answer and the kinds it cannot answer. What should we conclude when cultural tradition and genetics tell different stories? Are genetic answers relevant or irrelevant to competing cultural narratives of identity? Is the question “Where are you from?” an invitation to explore our common humanity amid diversity or is it a microagression that constructs barriers between us?

WHITE-COLLAR BLUES?: WORK IN THE AGE OF FLEXIBLE CAPITALISM
Rachel Meyer (Department of Sociology)

Freshman Seminar 43H 4 credits (fall term)  Enrollment: Limited to 12

Does flexible work lead to liberation or loss of identity? Does it bring self-fulfillment or insecurity? This seminar will examine the ways in which workers’ connections to employers, occupations, and locations have become more fluid and transitory, and we will critically engage in the debate about the social and personal consequences of such “flexible” labor. We will investigate what flexibility means in a variety of economic sectors and occupations, exploring the experience of work in the contemporary political economy with an eye toward both its liberating and oppressive potential. How do different forms of work affect our personalities, life circumstances, and connections to each other? What is meaningful work? Our approach will be rooted in the crucial question of workers’ control over their own labor and we will explore this through case studies. What does flexibility mean for tech workers in Silicon Valley and bankers on Wall Street? Throughout the seminar, we will pay particular attention to occupations where social class is ambiguous or problematic, leading us to the question: What does it mean to be a worker vs. a professional? In examining the labor process under modern capitalism, we will focus on both its structural aspects as well as on culture, ideology, and identity. And we will examine how the workplace intersects with gender, the family, and one’s experience outside of the factory gate or office cubicle. We will read prominent social theorists along with a variety of ethnographic accounts that, in different ways, seek to elucidate the conditions of work under modern capitalism.
WHY WE ANIMALS SING
Brian D. Farrell (Department of Organismic and Evolutionary Biology)

Freshman Seminar 22T  4 credits (spring term)  Enrollment: Limited to 11

Note: There will be required field trips at no cost to the student.

We do not sing alone. On land, four kinds of animals produce songs or calls: birds, frogs, mammals, and insects. Some of these (and fish) also do so underwater. The principal sounds such animal species make are signaling behaviors directly related to mating success. They are of individuals, usually males, marking territories and wooing mates. However, in any one location, species may also compete with one another for occupation of acoustic space (that is, for bandwidth) and otherwise optimize their sound signals to features of their environment. We will explore these topics and others as we listen to and read about each of the various kinds of singers on Earth, the biology of their sound production and reception, and the ways they attract mates while avoiding becoming meals for eavesdropping predators. We will listen to many different kinds of acoustic signalers across a wide array of acoustic communities in tropical and temperate settings, both terrestrial and aquatic, and we will examine sound spectra on a large screen as we listen, and slow down, and isolate sounds to help distinguish their parts. Finally, we will consider the biology and evolution of music in humans, considering evidence from brain studies, archaeology and anthropology, and the music of indigenous peoples. We will look at music parallels in different kinds in animals of other species. There will be field trips to listen to and record assemblages of local species. The overall objective is to awaken the students’ sense, understanding, and appreciation of the acoustic environment from which we come, and the role of this environment in shaping human biology and culture. There is a fair bit of reading required in preparation for weekly discussions. Accordingly, participation will be expected for discussion of the readings and listening experiences.
WORD–SOUND–IMAGE: POETRY AS A LANGUAGE LABORATORY
Aleksandra Kremer (Department of Slavic Languages and Literatures)

Freshman Seminar 60G  4 credits (fall term)  Enrollment: Limited to 12

Typical means of everyday communication—such as speaking, writing, or printing—can be taken to extremes in poetry. What sounds and images can we find in poetic texts? What materials and tools have been used to create poems? What happens on the borderlines between poetry and other arts? In our seminar we will study poems from different times and regions, with a special emphasis on the 20th-century European and American experimental literature. We will discuss visual poetry from Ancient Greece and Renaissance England, poems about paintings by Rilke and Auden, avant-garde texts and performances of Futurist and Dadaist artists, postwar French sound poetry, international concrete poetry movement, contemporary artists’ books, as well as recordings and readings of major poets. We will look for poetry in Harvard Art Museums and listen to recordings in the Woodberry Poetry Room. We will examine artists’ books from Harvard libraries, attend a poetry reading in Cambridge, view electronic archives of poetry, analyze voices of poets performing their texts, and study poems which are barely legible. We will confront these poetic experiments with scholarly texts from such disciplines as sound studies, art history, acoustic phonetics, graphic design, and literary studies. Finally, we will ask what are the gains and challenges of using innovative techniques and technologies in poetry and art.

YOU AND YOUR CAMERA
Peter S. Pershan (Harvard John A. Paulson School of Engineering and Applied Sciences)

Freshman Seminar 34O  4 credits (fall term)  Enrollment: Limited to 14

Prerequisite: Ideally, students should have had a good high school physics course; however, individuals who are motivated to understand the science of photography should not have a problem with the material taught in the seminar. Similarly, students should feel comfortable with high school algebra and trigonometry.

Note: Arrangements will be made for loaned cameras for those who do not own one.

Although two-dimensional images of the three-dimensional world have been created for well over 30,000 years, up until the 19th-century, the skills for making these pictures were limited to relatively few people. Photography has changed this. Some estimates assert that there are now of the order of 1,000,000,000,000 (one trillion) pictures taken each year. You might ask yourselves why people take all these pictures. Another question you might ask is what characterizes a good picture. More to the point how do the pictures that each of us take compare with those of famous photographers. The seminar will start with a historical review of art and photography in order to develop appreciation for both, the various reasons that we want images and the hallmarks of the best images. Certainly, the art of taking good pictures can be empirically learned without understanding the technical aspects of photography. On the other hand, the seminar will discuss aspects of the scientific basis behind the empirical practices in the hope that this will enhance your flexibility in applying the practices. Topics to be covered include both the physical optics of simple and compound lenses as well as the quantum physics that is the basis of the electronic devices that are fundamental to digital photography. The differences between the RAW, JPEG,
and TIFF methods for storing digital photographs will be discussed, along with the artifacts that can arise in the digitization of images. One issue in color photography is the manner in which the human visual system transforms the wavelength information in the light entering the eye into perceptions of color. The seminar will explain the trichromatic theory of color vision and then discuss the color management systems for display and printing. Finally, the seminar will discuss methods for editing pictures. Software that may be discussed include the open source (free) GIMP and RawTherapee and/or Adobe Lightroom and Photoshop.

**ZEN AND THE ART OF LIVING: MAKING THE ORDINARY EXTRAORDINARY**

James Robson (Department of East Asian Languages and Civilizations)

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*Note: This seminar will also include required film screenings, visits to the Harvard Art Museums, Boston’s Museum of Fine Arts and to the Cambridge Zen Center.*

This seminar explores the rich history, philosophy, and practices of Zen Buddhism as it developed in China, Korea, and Japan. We will first consider the emergence of the Zen tradition out of the Buddhist tradition and then explore the full range of its most distinctive features (Zen monastic meditation), cultural practices (painting, calligraphy, and poetry), and radical—even iconoclastic—innovations (such as the use of kōans, which are seemingly nonsensical sayings that defy rationality). We will also critically evaluate some less well-known facets of the Zen tradition, such as gender issues, the veneration of mummified masters, and the question of how Zen was implicated in modern nationalistic movements in Japan during World War II. During the mid-20th-century, Zen became a global phenomenon as Zen masters began to move around the world and introduce the practice of Zen meditation to those in search of religious alternatives to Western organized religions, rationalism, and materialism. Zen attracted the attention of writers, musicians, artists, and athletes. Why did Zen develop such a trans-cultural appeal at that moment in history? Why are there so many books with the title: “Zen and the Art of.....”? Why do so many computer and tech companies have Zen in their names? How has Zen meditation fed into the current “meditation/mindfulness” boom? These are some of the questions we will explore in this seminar through readings, film screenings, museum viewings, and a visit to a Zen meditation center.
### FACULTY 2017–2018

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