

While not required, first-year seminars are an excellent introduction to academic life in the College and are highly recommended for first- or second-semester students. The primary goal of the first-year seminar program is to provide every first-year student with the opportunity for a direct personal encounter with a faculty member in a small class setting devoted to a significant intellectual endeavor. First-year seminars also fulfill one of the College General Education Requirements. Below is the list of the first-year seminars offered in **Spring 2021**. Previously offered first-year seminars can be found in the **first-year seminar archive** (<https://www.college.upenn.edu/node/200>).

Requirements Filter ▼

### **The Art of Forgery: From Cuneiform Tablets to Fake News**

Nicholas Herman, Curator of Manuscripts, Schoenberg Institute for Manuscript Studies

How do we respond to objects that are something other than what they appear to be? Through a variety of case studies, this first year seminar will examine the question critically, assessing how the contemporary idea of forgery and its corollary, the fake, have come into being over time. Together, we will examine famous and lesser-known episodes of artistic deception, often but not always linked to financial gain, and invariably associated with fundamental questions of authenticity, value, and authorship. The cases of forgery we will examine concern areas as diverse as Mediterranean Antiquities, Biblical Papyri, Christian and Islamic manuscripts, Pre-Columbia terracottas, Chinese ceramics, canvas and panel paintings, and Early Modern books. The seminar will make virtual visits to local collections including the Kislak Center, the Penn Museum, and the Free Library of Philadelphia, and we will hold virtual encounters with a collector, an art dealer, and a legal expert. Readings will include scholarly responses to the issues raised, as well as media portrayals and extracts from general-audience books.

#### **ARTH 100 301**

R | 0130PM-0430PM |

**Fulfills:** Sector III: Arts & Letters

### **Music & the Brain**

Michael Kaplan, Lecturer in the Biological Basis of Behavior

Every human culture that has ever been described makes some form of music. The musics of different cultures cover a wide range of styles, but also display fascinating similarities, and a number of features are shared by even the most disparate musical traditions. Within our own culture, music is inescapable—there are very few individuals who do not listen to some form of music every day and far more who listen to music virtually all day long. Appreciation of music comes very early: newborns prefer music to normal speech and mothers all over the world sing to their babies in a fundamentally similar way. And yet, despite this seeming ubiquity, the real origin and purpose of music remains unknown. Music is obviously related to language, but how? Why do so many cultures make music in such fundamentally similar ways? What goes into the formation of music "taste" and preferences? Does music have survival value, or is it merely "auditory cheesecake", a superfluous byproduct of evolution as some critics have maintained? What is the nature of musical ability and how do musicians differ from non-musicians? In this course, we will look for answers by looking at the brain. Almost 200 years of scientific research into brain mechanisms underlying the production and appreciation of music is beginning to shed light on these and other questions. Although the sciences and the arts are often seen as entirely separate or even in opposition, studying the brain is actually telling us a lot about music, and studying music is telling us just as much about the brain.

#### **BIBB 060 301**

T | 1200PM-0130PM |

**Fulfills:** Sector V: Living World

### **Killer Viruses: What Threat Do They Pose in Contemporary Society?**

Glen Gaulton, Vice Dean and Professor of Pathology and Lab Medicine

The goal of this course is two fold: to provide students with an introductory, practical view of biological systems, and to enable students to evaluate the health threat of viruses as natural or terrorist-driven agents in contemporary society. We are all well aware of the recent emergence of multiple viruses as potential treats to

the public health: examples include SARS-CoV-2 and other SARS, HIV, West Nile and Ebola viruses. However, still greater threats may arise by expansion of existing virus, such as smallpox and influenza that we more commonly think of as being either eradicated or harmless. Through this course we will examine the general properties of viruses, our capacity to ward-off common virus infections using the immune response, the general concept of vaccination, the emergence of new virus pathogens, and the capacity of these pathogens to spread within our population based on regional and global culture and finance.

**BIOL 004 301**

W | 0300PM-0500PM |

**Fulfills:** Sector V: Living World**Ecological Consequences of Climate Change**

Arthur Dunham, Professor of Biology

Students will read and discuss seminal papers on a number of major topics in the ecology of climate change and the long-term consequences of the effects of climate change on ecological systems. Some of the topics include: effects of climate change on species distributions, disruption of plant pollinator systems and the consequences for ecosystem composition and stability, changes in the distribution and epidemiology of insect-borne infectious diseases, and the consequences of sea level rise and the increased intensity and frequency of severe weather events. Other topics may be covered. Grading will be based on participation in discussions, a paper on an approved topic, a presentation on the topic of the student's paper and 1 exam. May not be counted toward Biology major or minor.

**BIOL 010 301**

MW | 0200PM-0330PM |

**Fulfills:** Sector V: Living World**Descent with Modification**

Paul Sniegowski, Professor of Biology and Dean of the College of Arts and Sciences

Evolution provides the unifying framework for the biological sciences and has been confirmed by a huge and diverse body of evidence. Public opinion polls show, however, that evolution continues to be socially and politically controversial in the United States. In this freshman seminar, we will explore the scientific basis for evolution by reading and discussing historical sources, a current nonspecialist text on evolution, and selected papers and articles from the scientific and popular literature. With our knowledge of evolutionary fact and theory as background, we will also discuss social and political opposition to the teaching of evolution. Grading will be based on participation in class discussions and on performance in several brief writing assignments. There is no course prerequisite, but high school introductory biology would be helpful. May not be counted toward the Biology major and minor.

**BIOL 014 301**

M | 0800PM-1000PM |

**Fulfills:** Sector V: Living World**Structural Biology**

Ponzy Lu, Professor of Chemistry

This course will explain in non-mathematical terms how essentially all biological properties are determined by the microscopic chemical properties of proteins. It will also explain how research results, especially those of structural biology, are presented to its various audiences. This is a continuation of the Fall 2020 semester at 0.5CU per term. Fulfills Sector VII if both semesters are completed.

**CHEM 022 301**

TR | 0800PM-0900PM |

**Fulfills:** Sector VII: Natural Sciences & Mathematics**Freshman Seminar: Modern Sci-fi Cinema**

Christopher Donovan, House Dean and Adjunct Lecturer in Cinema &amp; Media Studies.

Science Fiction has been a cinematic genre for as long as there has been cinema—at least since Georges Melies's visionary *A Trip to the Moon* in 1902. However, though science fiction films have long been reliable box office earners and cult phenomena, critical acknowledgement and analysis was slow to develop. Still, few genres reflect the sensibility of their age so transparently—if often unconsciously—or provide so many opportunities for filmmakers to simultaneously address social issues and expand the lexicon with new technologies. Given budgetary considerations and the appetite for franchises, science fiction auteurs face a difficult negotiation between artistic expression and lowest common denominator imperatives, the controversy over Terry Gilliam's *Brazil* (1985) being perhaps the most infamous example. Nevertheless, many notable filmmakers have done their most perceptive and influential work in the sci-fi realm, including Gilliam, Ridley

Scott, David Cronenberg, Paul Verhoeven, James Cameron and Alfonso Cuarón. This course will survey the scope of contemporary science fiction cinema, after looking first at seminal works like *Metropolis* (1927) and *2001: A Space Odyssey* (1968) that continue to cast their shadow over the genre. We will then devote considerable time to a pair of more modern films, Scott's *Alien* (1979) and *Blade Runner* (1982), which drew from earlier movements (German expressionism, noir), influenced new ones (cyberpunk) and inspired a rare wave of academic discourse. Over the course of the term we will sample smaller, more independent-minded projects, such as Michel Gondry's *Eternal Sunshine of the Spotless Mind* (2004) and Spike Jonze's *Her* (2013) as well as higher profile but much more risky epics from filmmakers such as Steven Spielberg and Christopher Nolan.

### **CIMS 016 301**

MW | 0300PM-0430PM |

**Fulfills:** Sector III: Arts & Letters

### **Quantum & the Computer**

Max Mintz, Professor of Computer Science (Feith Family Seminar)

This First-Year Seminar is designed to be a very introductory exposition about Quantum Computation and Quantum Information Science. There are no formal physics, mathematics, or computer science prerequisites. It is meant primarily for freshmen in SAS and Wharton, who have an itch to learn about a beautiful subject that intrinsically unites quantum physics, computation, and information science. The structure of the course will be lecture-based using small-team based exercises for evaluation. The enrollment will be limited to 20 students. (Freshmen standing).

### **CIS 181 301**

TR | 1200PM-0130PM |

**Fulfills:** Sector VII: Natural Sciences & Mathematics

### **Travel and Ethnography**

Jeremy McInerney, Professor of Classical Studies

In this class we will read a broad selection of travel narratives, from Herodotus to Ibn Battuta and from the Jesuit Relations describing New France up to the 20th century writers such as Lawrence Durrell, Robyn Davidson and Rory Stewart. Our focus will be on exploring how travel and travel writing create exotic cultures. The journey also becomes a discovery of self by an encounter with the Other. In the process, entire worlds of wonder open up for the viewer. How material is selected for recording reflects the priorities, anxieties and worldview of the writer, reflecting travel's ability to focus our attention and stimulate thoughtful reflection.

### **CLST 016 401 | ANCH 016 401**

TR | 1030AM-1200PM |

**Fulfills:** Sector III: Arts & Letters

### **Data Science For Beginners**

Yphtach Lelkes, Assistant Professor of Communication

This course serves as an entrance to the world of data science and is aimed at students who have little to no background in data science, statistics, or programming. The core content of the course focuses on data acquisition and wrangling, exploratory data analysis, data visualization, inference, modelling, and effective communication of results. This course, which will rely on R, the statistical programming language, will prepare students for more advanced data science and computational social science courses.

### **COMM 113 301**

R | 0300PM-0430PM |

**Fulfills:** | Quantitative Data Analysis

### **Anime to Zen Aesthetics**

Frank Chance, Adjunct Associate Professor

Japan has one of the richest and most varied theatrical traditions in the world, and is a veritable museum of classical and contemporary performances practices. This seminar is designed to introduce students to several major aesthetic principles that are embodied in different theatrical genres. The students will be taken deep into several important texts of the performance tradition, as well as to various places on Penn campus and in Philadelphia in order to fully experience these aesthetics: 1. The "zen" aesthetic of the medieval noh theater characterized by minimalism and Buddhist contemplation. 2. The "queer" aesthetic of the early modern kabuki theater involving gender impersonation and exaggeration. 3. The "grotesque" aesthetic of modern butoh performance filled with distorted physicality and apocalyptic scenarios. 4. The "anime" aesthetic of the all-female Takarazuka Revue and of postmodern theater exhibiting parody and fan-generated culture.

### **EALC 050 301**

MW | 0500PM-0600PM |

**Fulfills:** Sector III: Arts & Letters | Cross Cultural Analysis

### Topics in Literature: Emotions

Rita Copeland, Joint Professor of Classical Studies and English

The field known as “History of the Emotions” has gained tremendous prominence in literary and cultural studies. But do emotions have a history? If so, what methods do we use for discovering and recounting that history? To what extent does history of the emotions borrow from other fields? These include all the fields that relate to what we call “emotions studies”: psychology, sociology, political theory, philosophy, and neuroscience. In this seminar we will explore some key methodologies and subject matters for history of the emotions. We’ll look at some philosophical reflections on emotion (including Plato, Aristotle, and the Stoics, as well as more recent moral philosophers); we’ll also look at political theorists, including Thomas Hobbes; we’ll explore psychoanalytic perspectives, historical research, and some of the work of neuroscientists; and we will take these ideas into explorations of art, literature, and music. I encourage students to bring their interests to the seminar and to make their fields part of what we study. We’ll have some basic readings that we all do, but we will also follow lines of research that are important to you. The paths that your research takes will shape our course.

**ENGL 015 401 | CLST 019 401**

TR | 0300PM-0430PM |

**Fulfills:** Sector IV: Humanities & Social Sciences

### Topics in Literature: Queer History and Theory

S. Pearl Brilmyer, Assistant Professor of English

What does it mean to call oneself gay? lesbian?trans? queer? Where did these words come from, and how do their differing meanings reflect a history of changing conceptions of LGBTQIA culture? How does language, literature, and media shape gender and sexuality? This course will take a historical approach to the study of queer theory. It will consider how shifting definitions of queerness, under different guises and different terms, have shaped our understanding of sexual and gender identity today.

**ENGL 016 301**

W | 0200PM-0500PM |

**Fulfills:** Sector IV: Humanities & Social Sciences | Cultural Diversity in the U.S.

### How Earth Works

Alain Plante, Professor of Earth & Environmental Science

This seminar will explore the physical science of the Earth's environment and human interactions with it. Coverage will include the Earth's various environmental systems, various environmental problems, and the direct and indirect causes of these environmental problems. The seminar will involve topical discussions of environmental issues and related social media projects. This first-year seminar is offered in connection with ENV5100. Students interested in taking it must also enroll in the full course, consisting of the lecture and one of the recitations: ENV5 100.001 (lec) |R| 12:00 p.m. - 1:30 p.m. ENV5 100 recitations (201-209) as well as the seminar: ENV5 100301 T |00100PM-0200PM

**ENVS 100 301**

T | 0100PM-0200PM |

**Fulfills:** Sector VI: Physical World

### Topics: Freshman Seminar: The Eternal Feminine? Women in Italian Culture

Marina Johnston, Lecturer in Foreign Languages in Italian Studies

This course will explore the role of women and ideals of femininity in Italian culture through a variety of documents, literary texts, and works of art, from the thirteenth century to contemporary Italy. We will take into consideration aesthetic and behavioral models presented by male and female writers and artists, and we will compare them to historical accounts of women in a variety of roles across society and time. We will examine, among others, written works by Dante, Petrarca, and Boccaccio as well as visual documents by Ambrogio Lorenzetti; the writings of fifteenth century male and female Petrarchist poets and of codifiers of society such as Baldassar Castiglione and Moderata Fonte, as well as paintings by Leonardo, Michelangelo, Bronzino, and works by Sofonisba Anguissola, Marietta Robusti, and Artemisia Gentileschi. Finally, we will examine the presence of women on the literary and artistic scene in the Eighteenth, Nineteenth, and Twentieth centuries, from Giuseppe Parini's vacuous aristocrats and Carlo Goldoni's budding business women to the intellectuals, workers, and entrepreneurs that helped shape the unified Italian state, to Francesco De André's prostitutes, Oriana Fallaci's rejection of motherhood, and the Italian feminist movement after the 1960s, with an eye also to the visual arts and cinema. The course will be taught in English. There are no pre-requisites.

**ITAL 100 401 | CIMS 014 401 | COML 107 401**

MWF | 0100PM-0200PM |

**Fulfills:** Sector IV: Humanities & Social Sciences | Cross Cultural Analysis**Proving Things: Algebra**

Davi Maximo, Assistant Professor of Mathematics

This course focuses on the creative side of mathematics, with an emphasis on discovery, reasoning, proofs and effective communication, while at the same time studying arithmetic, algebra, linear algebra, groups, rings and fields. Small class sizes permit an informal, discussion-type atmosphere, and often the entire class works together on a given problem. Homework is intended to be thought-provoking, rather than skill-sharpening. Students must in both the seminar (section 301, shown below) and one of the labs (101 or 102, below).

MATH 203.101 |M| 6:30 to 8:30 pm

MATH 203.102 |W| 6:30 to 8:30 pm

**MATH 203 301**

TR | 1200PM-0130PM |

**Fulfills:** Sector VII: Natural Sciences & Mathematics**Video Art: History and Practice**

Natacha Diels, Assistant Professor of Music

This is a lecture and project course on video art. The lecture portion covers the history of experimental video art (mid 1960s to present) in the US and globally, with a special focus on music video. Students will complete both written assignments on assigned topics (individual artists or aesthetic trends) and creative assignments (making video art pieces) using available software and hardware. The final project is creative with a written component.

**MUSC 016 301**

TR | 1200PM-0130PM |

**Fulfills:** Sector III: Arts & Letters**Music in Urban Spaces**

Molly Mcglone, Associate Director and Assistant Dean for Academic Affairs

Music in Urban Spaces is a year-long experience that explores the ways in which individuals use music in their everyday lives and how music is used to construct larger social and economic networks that we call culture. We will read the work of musicologists, cultural theorists, urban geographers, sociologists and educators who work to define urban space and the role of music and sound in urban environments, including through music education. While the readings make up our study of the sociology of urban space and the way we use music in everyday life to inform our conversations and the questions we ask, it is within the context of our personal experiences working with music programs in public neighborhood schools serving economically disadvantaged students, that we will begin to formulate our theories of the contested musical micro-cultures of West Philadelphia. This course is over two-semester where students register for .5 cus each term (for a total of 1 cu over the entire academic year) and is tied to the Music and Social Change Residential Program in Fisher Hassenfeld College House which will sponsor field trips around the city, if possible. While the future of education for this coming year remains unknown, we will volunteer with music and schools in West Philadelphia virtually and in-person as we are able. The course typically concludes with a community concert and as social distancing allows we will ensure multiple points of community connection through shared music, video, presentations, and concerts.

**MUSC 018 401 | URBS 018 401**

T | 0800PM-0930PM |

**Fulfills:** Sector IV: Humanities & Social Sciences | Cultural Diversity in the U.S.**Environmental Justice: Conservation Ethics & Politics**

Kok-Chor Tan, Professor of Philosophy

The theme of this first-year seminar course is the ethics and politics of wildlife and environmental conservation. We will explore two sets of questions related to conservation. (i) First, what do we owe to (non-human) animals and the natural environment? For example, what intrinsic interests and rights do animals have? And is there such a thing as "the right of nature?" Do rivers themselves, for example, have rights? (ii) Second, what do we owe to each other regarding animals and the natural environment? For example, what are the societal costs of wildlife conservation and how are these to be fairly distributed? How do considerations of social justice and global justice affect our understanding of ethical conservation? What is a globally just allocation of the burdens of climate justice and environmental protection? And has global eco-tourism contributed positively to both conservation and social/local justice? Among other things, this seminar will attempt to integrate the more

familiar field of animal and environmental ethics with the less explored question of the justice and politics of conservation.

**PHIL 070 301**

TR | 1200PM-0130PM |

**Fulfills:** Sector IV: Humanities & Social Sciences

**Honors Physics II: Electromagnetism and Radiation**

Alan Johnson, Professor of Physics

This course parallels and extends the content of PHYS 151, at a somewhat higher mathematical level.

Recommended for well-prepared students in engineering and the physical sciences, and particularly for those planning to major in physics. Electric and magnetic fields; Coulomb's, Ampere's, and Faraday's laws; special relativity; Maxwell's equations, electromagnetic radiation. Credit is awarded for only one of the following courses: PHYS 009, PHYS 102, PHYS 151, or PHYS 171. Students with AP or Transfer Credit for PHYS 092 or PHYS 094 who complete PHYS 171 will thereby surrender the AP or Transfer Credit. Students must enroll in both the seminar and the lab.

**PHYS 171 301**

TBA | TBA- |

**Fulfills:** Sector VI: Physical World

**Sociology of Race and Ethnicity**

Wendy Roth, Associate Professor of Sociology

This course will provide a foundation on the sociological perspectives of race and ethnicity in the United States. It will examine major themes such as racial and ethnic identity, assimilation of immigrants, race relations, mass incarceration, images in the media, discrimination, intersectionality, and economic and educational stratification.

**SOCI 041 305**

MW | 0200PM-0330PM |

**Fulfills:** Sector I: Society | Cultural Diversity in the U.S.

**Social Inequality and Health**

Courtney Boen, Assistant Professor of Sociology

Eat well. Exercise regularly. Get 7-9 hours of sleep. We have all been bombarded with this type of advice for achieving and maintaining optimal health. But how are our health behaviors and outcomes shaped, influenced, and constrained by social factors? How does where we live influence how—and how long—we live? And how do racism, gender inequality, and other forms of social exclusion, oppression, and domination impact health and well-being? This course provides an introduction into how social forces, broadly, and social inequality, specifically, impact individual and population health. We will begin by learning about how health is more than the product of individual lifestyle choices and genetic factors by exploring the social determinants of health. We will then examine how social inequality—particularly along lines of race, immigration status, social class, and gender—contributes to population health differences. We will analyze how racism, gender inequality, and other forms of social stratification both shape access to health promoting resources and opportunities such as well-paying jobs and healthy and affordable foods and also pattern exposure to harmful stressors and toxins such as discrimination and violence. Finally, we will discuss and debate policy and programmatic approaches aimed at reducing population health disparities. In this course, we will examine concepts related social inequality and health through a process called "active learning," which involves activities such as watching and reacting to films, reading about and responding to current events, and active dialogues and debates with classmates.

**SOCI 041 306**

W | 0330PM-0430PM |

**Fulfills:** Sector I: Society | Cultural Diversity in the U.S.

**Sociology of Education**

Annette Lareau, Professor of Sociology

Schools play an important role in social life, and educational institutions are crucial in the creation of the social stratification system. Generally, schools reflect social inequalities, but, in some cases, schools also provide a pathway for upward mobility for a select few. In this course, we will examine important debates in sociology of education including the contributions of different types of schools (e.g., public schools, charter schools, and private schools). We will briefly examine disparities in funding, and the remarkable turnover in staffing as teachers flee the profession. Teachers are not neutral actors – and we will look at the research showing how teachers more harshly discipline African-American children (especially boys) compared to white children, as well as how middle-class children gain crucial advantages in educational settings. Course requirements include a

midterm, final, and a research paper (i.e., five to seven pages) on a unique topic of interest.

**SOCI 041 307**

T | 0200PM-0500PM |

**Fulfills:** Sector I: Society | Cultural Diversity in the U.S.

**Vagelos Integrated Program in Energy Research (vipr) Seminar, Part I**

Andrew Rappe, Professor of Chemistry and Materials Science and Engineering; John Vohs, Professor of Chemical and Biomolecular Engineering; Michelle Hutchings, Managing Director of VIPER

This is the first part of the two-semester seminar designed to introduce students to the VIPER program and help them prepare for energy-related research. Research articles on various energy-related topics will be discussed, and students will be guided toward their research topic selection. Library research, presentation of data, basic research methods, research ethics, data analysis, advisor identification, and funding options will also be discussed. Sample energy topics discussed will include: Applications of nanostructured materials in solar cells; Solid oxide fuel cells; Global climate modeling; radiant heat transfer; Nanocrystal-based technologies for energy storage; Photo-bioreactor systems for mass production of micro-algae; Advanced rare earths separations chemistry; Modeling of oxides for solar energy applications; and Electronic transport in carbon nanomaterials. Admission to VIPER program required to enroll.

**VIPR 120 301**

T | 1100AM-1200PM |