

First-Year Seminars Spring 2020

Archaeology in Pop Culture

Douglas Smit, Senior Fellow in Anthropology

Archaeology often captures the popular imagination through fantastic and farfetched portrayals of lost civilizations, aliens, and spectacular treasures. While these depictions of archaeology and the past may not be accurate, the story being told is nonetheless significant and reflects something about the culture that produced it. This course explores how these films, television shows, books, and video games tell stories about the past, what stories are being told, and what these representations imply about the relationship between archaeology and modern society. We will critically analyze popular representations of archaeology, comparing how competing visions of science and popular science, fact and fiction, operate in the public sphere. By the end of the semester, you'll be able to: explain what archaeologists do and why; understand how archaeology and popular culture interact, how archaeology is portrayed in popular media, and how the public impacts archaeological research; to foster critical thinking skills and evaluate how science is communicated to the public; understand the relationship between the archaeological study of the past and the politics of the present.

ANTH 024 301

TR | 0130PM-0300PM | FISHER-BENNETT HALL 323

Fulfills: Sector I: Society

The "Rights of Nature" in Times of Conflict and Transition

Kristina Lyons, Assistant Professor of Anthropology

In less than half a decade, the idea that "nature" possesses inalienable rights akin to human rights has gone from a strictly theoretical concept to the basis of policy changes in several countries and U.S. municipalities. This first-year seminar will introduce students to current legal, political, ethical, and practical debates about the implementation and impacts of granting "rights to nature" in these different contexts. We will begin by examining how the Community Environmental Legal Defense Fund (CELDF) supported citizens of Tamaqua, Pennsylvania to write the world's first local "rights of nature" ordinance. We will then go on to compare the politics of "rights of nature" cases in Ecuador, New Zealand, India, and Colombia. We will pay particular attention to the way biocentric constitutional moves may transform concepts and understandings of environmental justice and socio-environmental conflicts. In particular, how the recognition of "nature" as a victim of war may transform understandings of violence, and hence, approaches to constructing peace and engaging and reparative and restorative practices within the larger framework of planetary and community efforts to mitigate climate change. Lastly, we will explore the possibilities and tensions between community decision-making, the "rights of nature," and national level policies regarding the intensification of extractive activities and questions of territorial ordinance.

ANTH 031 301

T | 0300PM-0600PM | COLLEGE HALL 315A

Fulfills: Sector I: Society

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

TR | 0130PM-0300PM | GODDARD LAB 100

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.

BIOL 010 301

MW | 0200PM-0330PM |

Fulfills: Sector VII: Natural Sciences & Mathematics

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.

CHEM 022 301

TR | 0800AM-0900AM | CHEMISTRY BUILDING B13

Fulfills: Sector VII: Natural Sciences & Mathematics

Modern Sci-fi Cinema

Christopher Donovan, House Dean, Gregory College House

Science Fiction has been a cinematic genre for as long as there has been cinema—at least since Georges Melies's visionary *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 scifi realm, including Gilliam, Ridley Scott, David Cronenberg, Paul Verhoeven, James Cameron and Alfonso Cuaron. 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 | FISHER-BENNETT HALL 141

Fulfills: Sector III: Arts & Letters

How Earth Works

Alain Plante, Professor of Earth and Environmental Science

This course 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. 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 recitation:

ENV5 100.001 (lec) | TR | 12:00 p.m. - 1:30 p.m.

ENV5 100.201 (rec) | M | 12:00 p.m. - 1:00 p.m.

as well as the seminar:

ENV5 100 301

M | 0100PM-0200PM |

Fulfills: Sector VI: Physical World

Italy and Migrations: A Long History

Marina Johnston, Lecturer in Foreign Languages

This First-Year seminar explores the history of migrations to and from Italy, from antiquity to the present, in order to reveal the complexity of Italian culture and to analyze Italian views of the world and the world's views of Italy through a variety of documents, literary works, art, scholarly and news articles, and film. We will begin with the foundational myth of Rome out of Aeneas' migration from Troy to seek refuge in a new land (Virgil's *Aeneid*), and we will move on to retrace Marco Polo's thirteenth century trek from Venice to China (Marco Polo: *The Description of the World*) and Shun Li's recent arrival from China to Venice (Segre's *Shun Li and the Poet*, 2011)). We will follow the Italian migrations to the United States before and after American Independence (1776) and Italian Unification (1861), in pursuit of the "American dream" (from Philip Mazzei, *Jefferson's "Zealous Whig"* to Crialesse's *Nuovomondo – Golden Door* and Scorsese's *Italianamerican*, and we will witness the transformation of Italy into a new "America" for migrants from other nations (Amelio's *L'america*, Melliti's *Io, l'altro* [I the other] and Crialesse's *Terraferma*), since the 1990s. While our focus will be on Italy, global comparisons will be encouraged.

ITAL 100 401 | CIMS 014 401 | COML 107 401

MWF | 0200PM-0300PM | FISHER-BENNETT HALL 141

Fulfills: Sector IV: Humanities & Social Sciences

Proving Things: Algebra

Henry Towsner, Associate 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.

MATH 203 301

TR | 1200PM-0130PM | DAVID RITTENHOUSE LAB 4C4

Music in Urban Spaces

Molly McGlone, Associate Director and Assistant Dean for Academic Affairs

Open only to students enrolled in this seminar in Fall 2019. Music in Urban Spaces 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 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 at West Philadelphia High School or Henry C. Lea Elementary, both inner city 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. All participants volunteer in music classrooms for about 3 hours per week, are expected to go to at least two concerts in the community during the year, attend the seminar weekly and complete all assignments.

MUSC 018 401 | URBS 018 401

F | 0200PM-0400PM | GOLDBERG CH - FOERDERER BUILD 205

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

Honors Physics II: Electromagnetism and Radiation

Charles Kane, 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 (PHYS 171.301, shown below) and one of the labs (PHYS 171.102, 103, 104) immediately below.

PHYS 171.102 (lab) |T| 3:00 p.m. - 5:00 p.m.

PHYS 171.103 (lab) |R| 3:00 p.m. - 5:00 p.m.

PHYS 171.104 (lab) |F| 3:00 p.m. - 5:00 p.m.

PHYS 171 301

MWF | 1000AM-1100AM | DAVID RITTENHOUSE LAB A6 M | 0200PM-0300PM | DAVID RITTENHOUSE LAB A6

Fulfills: Sector VI: Physical World

Politics of Reproduction

Dawn Teele, Assistant Professor of Political Science

The idea that the "personal" is "political" finds no greater example than in the politics of reproduction. From inheritance laws, the rights of the offspring of enslaved peoples, or policies to reduce (or increase) fertility, the modern nation state has had a great deal to say about the use and produce of women's bodies. In this course we will examine how formal and informal institutions have governed reproductive practices over the past 200 years. We will look at how family structures and economic development map onto fertility, and at how technological innovations in fertility control (including birth control and IVF) have influenced women's economic and political participation. We will also examine the "dark side" of reproductive policies -- not only sterilization campaigns but also the treatment of sex workers and IVF -- to understand how state policies have divided women based on race, class, and occupation. Throughout the course we will analyze how formal and informal institutions can and have been subverted through collective action.

PSCI 010 301

M | 0200PM-0500PM |

Fulfills: Sector I: Society

War on Drugs in Latin America

Dorothy Kronick, Assistant Professor of Political Science

The United States government has spent tens of billions of dollars on policies aimed at reducing the flow of illicit drugs from Latin America and the Caribbean. In this seminar, we will ask: What motivates these policies? On what were these billions of dollars spent? How did these policies affect the supply of drugs to the United

States? How did these policies affect violence in Latin American countries? How did they shape the revenues and political power of drug trafficking organizations? Through readings, discussion, and writing, we will analyze one of central tenets of the relationship between the United States and Latin America.

PSCI 010 401 | LALS 107 401

T | 0130PM-0430PM | MCNEIL BUILDING 582

Fulfills: Sector I: Society

Godliness, Miracles, and 'madness' in Indian Ocean Port Cities

Terenjit Sevea, Assistant Professor and Undergraduate Chair of South Asia Studies

This freshman seminar course introduces students to the religious worlds of the modern Indian Ocean. No background knowledge is required as this is an introductory course which aims to guide students into the oft-forgotten reality that religion was intricately connected to economic, political and technological developments of the Indian Ocean. Drawing attention to ports and cities of the Indian Ocean, it will focus on religious worlds centered upon highly mobile Muslim, Hindu, Christian and Sikh saints, missionaries, divinities and spiritual beings. Students will be introduced to academic writings on these saints, missionaries and divinities, and primary sources produced by religious communities and cults of the Indian Ocean. In doing so, students will be encouraged to consider ways in which a study of 'religious economies' of the Indian Ocean can be recovered. Moreover, students will be encouraged to engage the question of whether the religion of communities across the Indian Ocean was a distinct product of circulations and cosmopolitanism.

SAST 160 401 | RELS 160 401

T | 0300PM-0600PM |

Fulfills: Sector II: History & Tradition

Environmental Sociology

Daniel Cohen, Assistant Professor of Sociology

This first-year seminar will introduce students to a range of novel social perspectives on the contemporary global environmental crisis that is usually represented in strictly scientific terms or according to clichés about environmentalists, grouped into four themes. First, we will emphasize the fundamentally global nature of environmental problems like greenhouse gases and water scarcity. Second, we will explore the rich analogies between human and non-human consciousness, and how the relationship between humans and non-humans varies across time and space. Third, we will explore new thinking on environmental inequality, which explores the subtle ways in which all social groups both make and suffer the global environment in distinctive ways. Fourth, against the intuitive despair that global environmental crisis is too great for any of us to have any positive impact, we will explore the surprising ways in which motivated individuals, working together, can do more than ever to help alleviate our ecological crises.

SOCI 041 301

TR | 0130PM-0430PM |

Fulfills: Sector I: Society

Poverty & Inequality

Regina Baker, Assistant Professor of Sociology

What does it mean to live in poverty in the "land of plenty" and experience inequality in the "land of opportunity?" This first-year Seminar explores these questions and others related to poverty and inequality in contemporary America. The first part of this course focuses on poverty. We will examine topics such as poverty perceptions and measurement, poverty trends, causes of poverty, poverty-related outcomes, and anti-poverty policy. The second part of this course focuses on inequality more broadly. We will examine how inequality is defined and what it looks like in the U.S. We will compare the "Haves" and the "Have Nots" and discuss social class, mobility, wealth, and privilege. Lastly, we will explore how different domains (e.g. education, the labor market, health, the justice system) produce, maintain, and reproduce inequalities. Throughout the semester, we will consider the roles of race/ethnicity, gender, age, and place, and how they help deepen our understanding of poverty and inequality.

SOCI 041 302

W | 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; John Vohs, Professor of Chemical and Biomolecular Engineering

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.

VIPR 120 301

T | 1100AM-1200PM | CHEMISTRY BUILDING 514