

Architecture and Urban Design 88S: Musical Urbanism

Student Facilitator: Ryan Conroy | Faculty Mentor: Roger Sherman

Description: Popular music is often analyzed for its cultural implications, but rarely is music thought of spatially. Bob Dylan and Tupac are readily linked with social and historical significance, but how can music speak to the physical environment?

This class will analyze case studies of music movements in the spaces that generated them. From Compton to Manchester, urban space is never a passive actor in the production and consumption of music. In this course we'll unpack how music has the capacity to conjure perceptions of space different from that elicited by sight. In analyzing the relationships between a given song or album and its urban environment, we will ultimately address how music can uniquely reflect the spatial conditions of a given city.

Comparative Literature: What is an African story? : Exploring the Gendered Literature of Sub-Saharan Africa

Student Facilitator: Oluwakanyinsola Ajayi | Faculty Mentor: Françoise Lionnet

Description: Literature is the only thing that has consistently helped people see past themselves; experience a world that is ultimately different from theirs. African Literature - in addition to its giving a voice to an otherwise silent continent - is especially apt in its taking human conflict and presenting it in the form of beautiful stories. There are many recurring themes in the literature but in this class, we will be focusing on one of them: the very relevant, gender & society. We will examine some representative African texts within the frames of gender roles & their representation, feminism and humanism. On occasion, we will refer to ideas of pan-Africanism, nationalism, transnationalism and post-colonialism. We will also partake in studies of genre: how are the forms of poetry, prose and drama manipulated to suit their purposes? The texts will flow into one another, thus forming the story of how African Literature has evolved to where it is now: transnationalist, and humanist.

Economics 88S: Bitcoin and the Future of Currency

Student Facilitator: Alex Rochlin | Faculty Mentor: Aaron Tornell

Description: Money: some say it's the root of all evil, others argue it makes the world go round, and some think just think that more of it leads to more problems. Whatever it's consequences, money has been a cornerstone of human civilization for 5000 years, facilitating transactions, measuring worth and storing value. This course will examine the newest monetary innovation: Bitcoin, a decentralized digital crypto-currency. Founded in 2007, Bitcoin has recently experienced rapid growth, rising from \$20/Bitcoin at the beginning of 2013 to over \$1000 by the end. However, there is growing concern Bitcoin may face increased regulatory pressures from the US government and may simply be a speculative bubble that will soon pop.

As a class, we will begin by looking at whether Bitcoin fulfills the requirements to be considered a currency. We will then examine historical speculative bubbles and determine as a class if Bitcoin is currently a bubble or if it is simply experiencing rapid, sustainable growth. Finally, we will examine the challenges and opportunities facing Bitcoin in the future, and debate if Bitcoin will ever achieve its goal of being an accepted mainstream currency. This course will feature guest lecturers who will offer more detailed information on subjects like the operations of Bitcoin and the Foreign exchange market. Students will be expected to participate in this course through class discussions, debates and two short research presentations.

English 88SA: Worlds Enough & Time: Time Travel in Fiction

Student Facilitator: Anna Galachyan | Faculty Mentor: Christopher Mott

Description: Time travel narratives have been a mainstay of science fiction since the early 20th century and comprise a sub-genre of their own, with unique tropes, cliches, and mythologies. In this seminar, we will dive headfirst into some of the most iconic time travel stories (and a few that are more obscure) and explore the various ways this motif challenges or reinforces different perceptions of time, order, and personal agency. In addition to our study of time travel narratives as a separate unit, we will discuss how they fit into the larger world of storytelling. Material will include literature, film, and television from the mid-20th century to today.

English 88SB: Lewis to Lovecraft: Fantasy Literature and Belief Systems

Student Facilitator: Stephen Stewart | Faculty Mentor: Joseph Nagy

Description: Heroes, wizards and dragons lurk beneath the pages of many fantasy novels. While these works create bold new worlds for a reader to explore, they often simultaneously draw upon concepts and ideas from our world, especially belief systems. Fantasy provides an appropriate location to explore the construction and dissemination of belief systems by juxtaposing familiar institutions or concepts with foreign, far-fetched, and daringly creative ideas. From H.P. Lovecraft's Cthulhu to C.S. Lewis' Aslan, fantasy explores and critiques the nature of belief and what our understanding of belief systems should be. This discussion will even draw from J.R.R. Tolkien's Middle Earth and J.K. Rowling's Hogwarts, as both authors and readers of these popular works project their own visions onto these fantastic though not explicitly religious worlds. We will explore the texts of several major fantasy authors and analyze religious allusions, allegory, and undertones in their work. Students will demonstrate an in-depth critical understanding of various excerpts from novels and short stories through discussion and will also have a chance to explore and analyze a text of their own choosing for a short paper or create a short story of their own.

MCDB 88S: Above the Genome: Epigenetics and Uncovering the Secret of Life

Student Facilitator: Joshua Weinreb | Faculty Mentor: Rafael Romero

Description: Through this course, science and non-science majors alike will come to a better understanding of "The Secret of Life" and how it applies to our current lives and the future. Together, we will learn genetics and epigenetics and analyze the associated technologies. We will explore the past and present controversies within these fields, and even extend our discussion to issues that may come up in the future. You will learn why human males are genetically more similar to male chimps compared to human females (that explains a lot!), watch movies portraying the controversial issues we are discussing, and ultimately find out what the "Secret of Life" even is!

Physics 88S: From Mind to Matter – The Quantum Quandaries

Student Facilitator: Krish Bhutwala | Faculty Mentor: Eric Hudson

Description: In high school, we all learned about protons and electrons and how they combine to give the building blocks of matter, life, and basically everything we see. But have we ever stopped to consider how they came up with these radical ideas about things they couldn't even observe? The solution became what we call Quantum Mechanics, and it is the study of reality on its most, well, elementary level! Quantum mechanics is known as this bizarre, other-worldly science wherein it's possible (yet incredibly unlikely) that my clone will appear next to me in the next second or we would be able to walk through walls (neither of those happened). What is possible, what is unlikely, and what is outright impossible? These are some of the questions we wish to answer through quantum mechanics.

This class jumps into quantum mechanics from its very inception at the turn of the century. Using our own intuition and reasoning skills, we aim to follow the history and development of the science throughout the 20th century, and debate why experimental and theoretical physicists concluded what they concluded. Why did we need a new science? Who were the major figures developing this science? With texts and media sources entertaining for science and non-science majors alike, we will explore the underlying thoughts that go into building a science like quantum mechanics.

Political Science 88S: A Day in Court – The Precedents, Practices, and Procedures of U.S. Criminal Trial Attorneys

Student Facilitator: Timothy Hooyenga | Faculty Mentor: Karen Orren

Description: Once in your lifetime, you will be a part of the criminal justice system, either as a member of a jury, maybe as a witness, or unfortunately as a victim of a crime. Ever wondered what goes into the trial process? Ever wanted to know how attorneys prepare for their cases, present their arguments, and propel their side of the facts into the minds of jury members?

Combining a step-by-step evaluation of the various components of a courtroom trial with a rudimentary understanding of basic legal issues, this seminar intends to appeal to both those who have serious thoughts about law school and legal processes and to those who simply want to better understand their favorite legal-based drama. This course will address the fundamental building blocks that attorneys rely upon to construct and conduct their arguments in court. With different topics designated for each session, students will learn some basic techniques and “tricks of the trade” that attorneys employ in trial.

As the title suggests, the seminar addresses three areas of legal principles that attorneys must consider before and during their trials. The first weeks concentrate on the pre-trial issues that can affect the entirety of a trial. We will be primarily focusing on Supreme Court precedents that address such issues as police investigations, the right to an attorney, and jury selection. The second portion of the seminar will dive into the trial process itself, examining the practices of attorneys and the methods through which they develop their arguments. These methods will include theme and case development involving the calling of witnesses, delivery techniques, and direct and cross examination formulation. Lastly, the seminar concludes with a discussion of the common legal procedures that attorneys use to manipulate the trial process and counter their adversaries' arguments, including the introduction of evidence and the use of objections.

Psychiatry and Biobehavioral Science 88SA: The Neuroscience of Music

Student Facilitator: Joan Chou | Faculty Mentor: Ellen Carpenter

Description: Music is all around us, impacting many aspects of our lives. We consciously listen to music for the pleasure and emotions it evokes, and we are subconsciously influenced by the music we are exposed to in commercials, film soundtracks and our everyday environment. Yet the science of listening to music is poorly understood. Our brain perceives music, which elicits a wide range of emotions to varying degrees. But how? Why do we even need music, if it has no apparent evolutionary advantage? This seminar will shed some light on this mystery from the perspective of scientific research supported by empirical data. We begin by covering some fundamental neurobiology of the auditory system and sound perception. From there, we will explore several aspects of music, such as its emotional impact, its connection to speech and language, the famous “Mozart effect”, and current therapeutic uses for music. The best part of learning is being able to apply that knowledge to everyday life. The last two weeks will be “lab sessions” where we listen to music in various contexts and observe the effects studied throughout the quarter. Students will develop a genuine interest in music outside of this course and listen to music outside of the classroom with a well-informed scientific ear.

Psychiatry and Biobehavioral Science 88SB: Biomedical Ethics of Advanced Clinical Technologies

Student Facilitator: Maxwell Roth | Faculty Mentor: Thomas Strouse

Description: Biotechnology is ushering in an era of groundbreaking medical advancements in genetics, neuroscience, and molecular biology promising better treatments and new cures. But are these biomedical technologies being employed in ways that extend beyond the scope of their approved medical purpose? This course will examine this question by focusing on select biomedical technologies, and analyzing both their capacity to improve health and their potential to be misused. The assigned readings and course material will consist broadly of biomedical ethics texts, biotechnology journal submissions, popular science articles and internet-based social media content and public resources. Through class discussion on how these biomedical technologies are used in the assessment and treatment of patients in a clinical setting, this seminar will explore the intersection of biotechnology and ethics. Students will investigate the ethical boundaries of these biomedical technologies and evaluate a few of the current and theoretical models for technological and ethical oversight in healthcare. Lastly, students will engage each other, each week, in dynamic discussions on the role and application of biomedical ethics and advanced biotechnologies in the future of healthcare.

Public Health 88S: Preventive Medicine: Leading Healthy Lifestyles for a Better Future

Student Facilitators: Rasika Deshpande & Sajan Shah | Faculty Mentor: William McCarthy

Description: Regular milk or soy milk? 20 minute jog or a 20 minute nap? Everyday we are forced to make important decisions about the foods we eat and the lifestyle that we live; but what exactly are the repercussions for our good and bad decisions? In this seminar we will explore good nutrition, exercise, and healthy life choices. Specifically, we will discuss obesity, tobacco, mental and physical health, and sex. Other aspects of preventive medicine that we will investigate are the implications of socio-economical and cultural barriers that affect the lifestyle choices that exist around the world. After this course, students will have learned and developed the tools necessary to be able to form a lifestyle plan that will help them pursue a healthier future.

Society and Genetics 88S: A Wrench in the Works: Human Genetic Disorders and How We Live with Our Genes

Student Facilitator: Elizabeth Earley | Faculty Mentors: Sally Gibbons & Christina Palmer

Description: Being diagnosed with an illness can elicit a spectrum of emotional responses, from indifference to confusion, shame, and fear. Learning of a genetic predisposition to illness, on the other hand, can introduce an entirely new subset of concerns – newfound confusion over the subtleties and ambiguities of genetic testing results, shame over decisions and treatment sought, and fear of one’s future and for the future of family members who may also be affected. In this seminar, we will look closely at the sorts of struggles faced by people at risk for disorders with a genetic basis, with a focus on the forces in society that shape the attitudes, decisions, and treatment options that exist today. Our discussion will draw heavily from media and personal narratives to examine how genetic disorders are understood and incorporated as part of one’s identity. We will mainly examine BRCA-1 and 2 gynecological cancers as a case study, and will compare experiences of BRCA to those of Huntington’s chorea and Alzheimer’s disease.

Sociology 88SA: Scientific Differences in Race, Gender, and Sexual Orientation, and Do they Make a Difference?

Student Facilitator: Arash Ghaffari-Rafi | Faculty Mentor: Jerome Rabow

Description: Over 2 million scholarly papers published annually, yet few diseases cured and medical innovation lagging, we question “is the scientific paper a fraud?” We will examine whether most “discoveries” warrant attention or simply emphasize and maintain societal arrangements to entrench inequalities. Students will study the fluidity of race by partaking in a genetic test to trace their own lineage. Topics will include: genetics and race (racism), physiological gender differences and healthcare policy (sexism), neurobiology and sexual orientation (homophobia). Subtopic will include the societal and biological factors behind discrimination. Case studies will review the use of science in determining discriminatory policies (Holocaust in Nazi Germany, South African apartheid, American immigration policy).

Sociology 88SB: Leaning In: Can We Really Break the Glass Ceiling?

Student Facilitator: Radha Kumar | Faculty Mentor: Abigail Saguy

Description: Despite the tremendous progress women have made in the past century, they only hold 4.2 percent of Fortune 500 CEO positions. In her recent book "Lean In: Women, Work, and the Will to Lead," Sheryl Sandberg addresses some of the reasons why there are few women leaders in the workplace. Sandberg's book suggests that women can break the glass ceiling if they “lean in” the workplace. Sandberg advises women to sit at the table, find a partner that supports one's career goals, and to not leave the workplace before they actually start a family. We will critique these claims using sociological and anecdotal evidence. This seminar will examine how race, socio-economic status, and family life affect women's career mobility. We will also explore men's increasing contributions to housework and childcare.