

Dietrich College Interdisciplinary Courses

Note on Course Numbers

Each Carnegie Mellon course number begins with a two-digit prefix which designates the department offering the course (76-xxx courses are offered by the Department of English, etc.). Although each department maintains its own course numbering practices, typically the first digit after the prefix indicates the class level: xx-1xx courses are freshmen-level, xx-2xx courses are sophomore level, etc. xx-6xx courses may be either undergraduate senior-level or graduate-level, depending on the department. xx-7xx courses and higher are graduate-level. Please consult the Schedule of Classes (<https://enr-apps.as.cmu.edu/open/SOC/SOCServlet>) each semester for course offerings and for any necessary pre-requisites or co-requisites.

Dietrich College Interdisciplinary Courses

66-102 DC Freshman Seminar: Issues in American Environmental History

Fall: 9 units

This seminar will focus on major issues in the evolution of the American environment. Much of America's past environmental history has been beset with controversy, as scientists and engineers, health officials, politicians and the public debated about the cause and solution for various environmental problems. This seminar will examine some of the major environmental issues that have evolved over time through a combination of reading, discussion, and short papers. Where ever possible, comparisons will be made with conditions in other parts of the world.

66-103 HSP Freshman Seminar: Appalachia (for HSP students only)

Fall: 9 units

The Appalachian region - which stretches from Georgia to New York's southern plateau - has a particular place in American history and memory. This course will examine the political, literary, economic and historical narratives that surround the region, as well as examining the role that Appalachia can play as a model for developing regions in other parts of the world. This course fulfills the Freshman Seminar requirement for the Humanities Scholars Program. Enrollment is restricted to first-year HSP students.

66-104 DC Freshman Seminar: Philosophy and Argument

Fall: 9 units

What makes me "me"? What is real? Is there a God? What is the mind, and how does it interact with the body? Can computers think? Are humans ultimately free? What makes our lives valuable? Should we try to make ourselves immortal? What should we do about climate change? These are some of the toughest, most pressing questions in philosophy today. Philosophers have addressed these questions by producing subtle, intricate, and often beautiful arguments. In this seminar, you will assess those arguments and produce your own. You will learn to think like a philosopher - to strip an argument presented in prose to its bare essentials and produce a visual representation that displays its structure plainly. Learning to visualize arguments in this way will improve the clarity and rigor of your own thinking and writing. It will put you in a position to make progress on hard questions such as those above. And it will improve your ability to crisply convey your ideas - an ability that will serve you well not just in your Carnegie Mellon classes, but also in the political, professional, and civic reasoning you employ for the rest of your life.

66-105 DC Freshman Seminar: Scientific Thinking: in Children, in Adults, in Scientists

Fall: 9 units

The aim of this course for you to learn how to provide a coherent answer to the question: "What does it mean to 'do' science"? You will discover that the answer depends on being able to define "the scientific method" and "scientific knowledge." We will sample - a very tiny part of - the vast literature on Science. This will involve reading selected papers about scientific reasoning, creativity, invention, and discovery. You will learn something about what philosophers, historians, sociologists have written about how science is done, and you will also see what scientists themselves have to say about the matter. In one part of the course, we will read selected topics from a standard textbook on thinking and problem solving. You will have a chance to do some psychology research of your own that reveals how people go about forming hypotheses and designing experiments to test them. In addition, we will look at studies and research papers about the cognitive psychology of science, and you will read several "primary sources": articles from journals in cognitive psychology that deal with the psychology of scientific reasoning. Finally, we will spend some time learning about research on teaching science in the early grades, and examine some of the current controversies about science.

66-106 QSSS Freshman Seminar: Applied Quantitative Social Science I (for QSSS students)

Fall: 9 units

The QSSS Freshman Seminar provides a fast-paced introduction to a range of methods in the quantitative social sciences. Organized around a set of case studies, the course introduces the language and methods of empirical research through a combination of seminar-style discussions of academic papers, and hands-on lab work using the statistical software R. Students will replicate results from a high-profile labor market discrimination paper, explore agent-based models of neighborhood segregation, and scrape Wikipedia data to examine imbalances in gender representation. Enrollment restricted to first-year QSSS students.

66-107 Freshman Seminar: Modeling Complex Systems

Fall: 9 units

Most of the major issues confronting humanity—such as climate change, financial collapse, ecosystem survival, terrorism, and disease epidemics—are the result of complex systems where the interactions of the pieces of the system create a whole that is rather different than any of its parts. Unfortunately, traditional scientific methods that focus on reducing systems to their parts and then analyzing each part provide little insight into such systems. This seminar explores the behavior of complex systems as well as how to model and understand them using both traditional tools and computer-based approaches.

66-108 DC Freshman Seminar: Statistical Paradoxes: When You Can't Trust Your Own Eyes

Fall: 9 units

Humans are notoriously bad at probabilistic thinking. We're crushed if our hometown team loses when it's the favorite, and ecstatic when we go on a lucky streak playing craps: we constantly see patterns in randomness. Even Paul Erdos, one of the greatest mathematicians of the last few centuries, was famously wrong about a deceptively simple probability puzzle. When it comes to statistics, we often run into trouble when we rely on intuition - we can't trust our own eyes. In this class we will tease apart some entertaining but important statistical paradoxes and biases. For example: Why are better health outcomes reported when only medical screening improves? How could David Justice have a better batting average than Derek Jeter in both 1995 and 1996 separately, but not in 1995-1996 combined? Could most published research findings actually be false? Why should attorneys be forced to learn Bayes' Theorem? Can we really know that smoking causes lung cancer? This course will help you answer these questions, teach you to think critically about research and news reports, or at least give you some entertaining anecdotes to tell at parties. We will also use the statistical software R for hands-on exploration

66-109 Grand Challenge Freshman Seminar: Climate Change

Fall and Spring: 9 units

Many consider climate change to be the most serious social, political, and environmental issue of the 21st century. As human activities increase the level of greenhouse gases in the atmosphere, scientists have established the reality of climate change and have estimated its impacts on human society and the natural world. Despite the scientific consensus on its existence, causes, and consequences, a substantial number of Americans and citizens of other countries still question these conclusions and a small but vocal group of doubters continue to challenge the science and scientific consensus on climate change. In spite of some social division over these issues, governments at local, national, and international levels have made concerted efforts to craft policies to address climate change. These policies have shifted over time as the information, attitudes, and technology associated with climate change have evolved. In this course, we will explore the challenges and complexities of climate change by investigating the subject from a variety of angles: scientific, political, rhetorical, cultural, economic, technological, and ethical. Over the course of the semester, we will inquire: What is climate change? How do scientists know it is happening? Why is there public debate over it? What solutions are available? And what are the pros and cons of the different solutions?

66-110 DC Grand Challenge Freshman Seminar: Inequality

Intermittent: 9 units

This Grand Challenge freshman seminar on inequality is inspired in part by the specter of global income inequality. Income inequality has reached such a peak that eight men own as much wealth as half the world's population, the world's poorest 3.6 billion people. Inequality may be a feature of all societies across history to some degree. But inequality strikes us an especially timely topic because of the current demands for greater political, social, and economic equality. The four of us will use the disciplines we come from - economics, anthropology, history, psychology, and literary/cultural studies - to introduce you to the concept of inequality in the age of capitalism. We will consider how inequality emerged as a social and political problem in the 18th and 19th centuries, and how it has re-emerged as a key concept for socio-political movements in our current moment. We will conclude with an inquiry into what the future of inequality might look like, especially with the coming of increased automation and the elimination of at least 50% of the jobs currently being done by human beings.

66-111 Grand Challenge Freshman Seminar: From Humn Traffckng to #MeToo: Und Gnd Basd Vnc

Spring: 9 units

Gender Based Violence (GBV) is a global health & human rights crisis in which, according to the World Health Organization, one in every three women has been beaten, coerced into sex, or abused. Discourse surrounding GBV enters into the sacred space of the home, the strategies of advertisers, the halls of the Senate, college campuses, and the galleries of the world's most well known museums. It is, literally, everywhere. Although it is everywhere, wide spread, and catastrophic, GBV is often minimized, concealed, and dismissed. This course will explore the many manifestations of GBV, from stalking to human trafficking, removing it from the shadows and bringing it into the open so that we can do something about it. Toward that end, we'll simultaneously explore the many creative ways people are combating this global epidemic. Throughout our work, we'll explore how gender based violence intersects with multiple, overlapping systems of oppression, from race to heteronormativity. Finally, you'll imaginatively develop your own resistance strategies through a culminating, group project.

66-112 DC Freshman Seminar: Mathematical Thought from Euclid to Cantor

Spring: 9 units

Mathematics and philosophy have been intertwined since ancient times, and philosophers have long been engaged in the project of explaining what it is that makes mathematical knowledge special. In this seminar, we will consider three important periods in the development of mathematics, and associated philosophical reflection. Specifically, we will study Euclid's theory of geometry, and its impact on Plato and Aristotle; Newton's invention of the calculus, and its impact on early modern philosophers; and Cantor's theory of the infinite, and its impact on early analytic philosophy.

66-113 DC Freshman Seminar: The Neuroscience and Psychology of Everyday Life

Spring: 9 units

A lot goes on "behind the scenes" in everyday activities like listening to music, studying for an exam, or recognizing a friend across campus. In this course, we will go behind the scenes to examine the neuroscience and psychology of the behaviors of everyday life. You will become acquainted with research and theory at the intersection of psychology and neuroscience, at levels from molecular to cognitive. Along the way, you will learn to separate fact from fiction and to evaluate media claims about the mind and brain. You will learn what cognitive and neural sciences have to say about practical matters like making good work habits and studying efficiently. Throughout the course, there will be an emphasis on critical thinking and application of what you are learning. You can expect connections to pop culture, media and current events as we connect cutting-edge research with topics relevant to everyday life. The course is open to all freshman, both science and non-science majors.

66-114 DC Grand Challenge Freshman Seminar: Racism

Intermittent: 9 units

Racism is everywhere in the twenty-first century. In August 2009, the renowned Indian actor, Sharukh Khan, was detained at Newark International Airport. According to Khan, his Muslim surname led American immigration officials to question him about the nature of his visit for over two hours. Was his treatment racist? In 2011, Luis Suarez a Uruguayan soccer player was punished for allegedly calling French footballer Patrice Evra "negro" in England. But was the word "negro," said in Spanish, racist? Racism is a complex phenomenon that refers to historically hierarchical power differences between groups (e.g. Native populations and Europeans during the conquest), ideas about how humans can be classified into groups by "race," and also discriminatory practices against non-dominant groups. This system of social relations and ideology serves to justify social inequality and differential treatment. If we are to end racism, we must strive to understand it. What are the historical origins of racism? How is racism reproduced? How does race influence identity formation? Can racism produce positive identities? Why has the struggle against racism shifted from a demand for human rights to a search for diversity and inclusion? This course will examine racism in Pittsburgh, in the United States, and in several other countries and regions throughout the world. We will approach racism from multiple academic perspectives with a team of three faculty from the departments of History, English and Modern Languages. This team-based interdisciplinary approach to Freshman Seminars draws on several departments and guest speakers.

66-115 DC Freshman Seminar: Introduction to Thinking Strategically

Intermittent: 9 units

We rarely make decisions in a vacuum. The optimal course of action often depends on what others will do. Game theory is the formal study of strategic interaction and aims to help us understand situations where rational decision makers interact. In this course we will use equilibrium analysis to study topics including competition, credible threats, commitment problems, and the strategic use of information with an emphasis on business, economic, and public policy applications

66-116 DC Freshman Seminar: Networks: Where do they Come From? What do they Tell Us?

Intermittent: 9 units

Thirty years ago, the word "network" was mostly used in reference to computers or television broadcasting channels. Now we have networks of friends, enemies, phones, stars, tweets, international governments, terrorists, etc. Where do these networks come from? How are they built? What do they represent? As we learn more about how everything is connected, we also face challenges in trying to understand the data that a network can generate. In this course, you'll learn about networks from a New England monastery facing a political crisis to social groups of friends (is obesity contagious? what about divorce?) to 15th century marriages among prominent Italian families to international political disputes and skirmishes (is the enemy of my enemy my friend?) to the spread of HIV among intravenous drug users. Along the way, we'll explore how to describe, visualize, analyze, and even break down the networks that surround us.

66-117 Grand Challenge Freshman Seminar: Political Rhetoric

Fall: 9 units

Political rhetoric is like an eel - slippery and difficult to grasp, but when you grab it, shocking. Or perhaps political rhetoric is like an octopus - hidden behind a defensive screen of ink, and ready to take you for a sucker. Or maybe political rhetoric is like a chameleon changing its nature based on context, such as the metaphors used to describe it. We live in a Democracy, in which we, the electorate, are supposed to engage in discourse and political debate to make wise decisions about our country's future. But language can be used to conceal and mislead, to exploit and to confuse. Spin and propaganda target psychological and institutional weaknesses, playing to our emotions, cognitive biases, and social contexts. In this class, we will come to understand political rhetoric, how it propagates, persuades, pacifies and perplexes. And ultimately, how we can use language more effectively to create better political discourse and a better society.

66-118 Grand Challenge Freshman Seminar: Thinking With Evidence

Fall: 9 units

Grand Challenge Freshman Seminar: Thinking with Evidence: Data, Scientific Discovery, and Society. In a time of big data and widespread skepticism of science, it is crucial to understand how data and facts can be turned into conclusions, and then into public policy. Using topics from medicine, epidemiology, and public health, this course provides students an introduction into the grand challenge of understanding how evidence is used (and abused) in support of scientific conclusions. Questions of health and disease are particularly important areas for thinking about facts and figures because many life-or-death decisions have to be made on the basis of fragmentary and unreliable evidence. Every trip to the doctor, illness, and vaccination involves a complicated mix of public policy, scientific evidence, and emotional and historical factors. This course helps students understand the sciences and the humanities as united in their desire for rigorous argumentation rather than as competing or incompatible ways of thinking. Moreover, by taking a wide-angle lens to the topic, students will see how and why standards of scientific proof have changed over time, and track what these changes mean for thinking about evidence. Co-taught by a statistician and historian, this course draws on many different disciplines, providing students a broad introduction to reasoning across the humanities and social sciences. Students will be required to participate in written and oral arguments, read scientific articles as well as political, historical, and legal documents, and prepare a capstone project in which they will be asked to weigh real-life evidence and recommend a course of action to the Food and Drug Administration. Other topics may include vaccination controversies, regulation of carcinogens and toxic chemicals, mammography screening standards, and the treatment of infectious diseases in global health settings.

66-119 Grand Challenge Freshman Seminar: Feeding the World, Feeding Ourselves

Fall: 9 units

Food in the twenty-first century is ripe with paradox: fewer people than ever work as farmers or ranchers, but the quantity and global variety of foods available to consumers continues to expand; public health officials around the world are raising alarms about diseases linked to the over-consumption of fats and sugars, even as hundreds of millions of people do not know where their next meal is coming from; organic agriculture is booming, while agribusiness giants like Monsanto continue to expand. Producing food consumes more land and water resources than any other human activity. The individual and collective decisions people make about food shape individual and community health, social justice, and sustainability. If we are to make sound decisions about how to feed the world and feed ourselves, we need to understand the highly creative and contentious ways that people produce and consume food. In this class we will address the following central questions in order to unravel some paradoxes, and help us make informed choices, about foods we consume: (1) What are the origins of agriculture, and why does it matter for the future of food? (2) How do cultural, ecological, economic, and technological contexts shape food acquisition, preparation, and consumption? (3) What are the causes of hunger & can we feed 8 billion people healthy food and not trash the planet? And (4) what roles have science and technology played in shaping & industrial food, & and in shaping the world around us?

66-161 Grand Challenge Freshman Seminar: Artificial Intelligence and Humanity

Fall and Spring: 9 units

In 1965 British mathematician I.J. Good wrote, "An ultraintelligent machine could design even better machines; there would then unquestionably be an 'intelligence explosion,' and the intelligence of man would be left far behind." As we enter an age where companies like Uber are testing driverless cars in Pittsburgh and innovative interfaces like IBM's Watson can play Jeopardy and learn techniques for medical diagnoses, how are we to negotiate an 'intelligence explosion' that for many individuals might threaten the very notions of what it means to be human? The future of human-to-machine relationships will likely define our historical epoch and yet, many young technologists and humanists underestimate the downstream impact of technological innovations on human society. Presently, we have little choice but to attend to this rapidly anxiety-ridden question. This seminar will attend to the challenge of contemporary existential questions on what it means to be human (read not machine) in the context of a rapidly advancing technological age. We will consider human narratives throughout history that exam how governments and individual citizens defined humanity in the context of slavery and colonialism as a framework for exploring and projecting what it means to be human in the age of rapidly advancing 'intelligent' machines. We will trace the technological advancements of the recent five decades and identify historical precedents and speculative narratives that help us to consider issues like labor, economic disparity, negotiations of power, human dignity and ethical responsibility within the context of human relations with advancing technological tools that are now coined, artificial intelligence.

66-202 Pathways: Dietrich College Career Exploration Seminar

Intermittent: 3 units

Designed for Dietrich College students, this seminar will assist students in effective career decision making, development of internship and job search skills, and workplace readiness. Students will participate in activities involving self-reflection/self-awareness, major and career exploration, personal branding techniques, and communication skills. We will invite guest speakers including alumni, employers, and on-campus resources. Students will also be required to participate in an evening networking event with alumni throughout the country.

66-204 Film Festival

Spring

Students will take on the project of planning and managing a film festival that draws a college- and city-wide audience. Students will collaborate on all aspects of the festival: selecting films, generating and distributing marketing materials, designing and scheduling events, arranging facilities and general logistics, coordinating internal and external public relations, organizing fundraisers, rallying the local communities - in short, all the aspects involved in making the event a spectacular/sensational success! A unique feature of this course-cum-festival will be several directors' participation as guest speakers on the festival theme and other issues informing their films. Previous Film Festivals have covered such topics as: Democracy, Mechanization, Realism, Globalization, Migration, Media and Work. This course is also designed to supplement the study of film with the historical, political and sociological background that students need for critically analyzing the images and ideologies they see on the screen and understand how those images effect our views of the past and present time.

66-221 Topics of Law: Introduction to Intellectual Property Law

Intermittent: 9 units

Topics for this course vary, to include such foci as intellectual property, introduction to U.S. law, great American trials, and the U.S. Constitution. Topics and courses are designed to be broadly relevant and interesting for university undergraduates, and not narrowly tailored for students interested in law school.

66-307 Independent Study

All Semesters

This course is intended for students with a special interest in an interdisciplinary area in the humanities and/or social sciences not covered by a normal course. Readings and other works are developed by the student and an individual faculty member. The number of units will be assigned at the time of registration based on the number of hours to be completed (decided in advance with the sponsoring faculty member).

66-320 Internship

All Semesters

Internships-for-credit allow students to apply course-based knowledge in a non-classroom setting, under joint supervision and evaluation by an on-site supervisor and a faculty sponsor. Approved internships must conform to college guidelines for internships-for-credit, and are available by permission only arranged through the Associate Dean's Office in Baker Hall 154.

66-400 Dietrich College Senior Honors Colloquium

Fall and Spring: 1 unit

The purpose of this course is to provide students admitted to the Dietrich College Senior Honors Program with a shared set of intellectual and practical sessions that will enhance their senior honors thesis experience. The course will consist of seven bi-weekly 80-minute meetings. Each will be organized around themes or topics related to the senior honors thesis experience. Sessions will be discussion-based, offering opportunities for students to build communication practices on their research area and to encourage exchange across the various disciplines represented in respective projects. Guest visitors will also be a common feature of the course. Topics could include: o The meaning(s) of "Honors" o Research Methods and Pace o Ethics in Research o "Interdisciplinarity," or the "Unity of Knowledge" o Funding for Research o Preparing for and Delivering Effective Presentations o Translating Independent Research into Professional Development o Intellectual Property Rights, and Human Subjects Policy o Guest speakers invited to address and engage class members in discussion/debate of topics that lend themselves to interdisciplinary discussion and debate (e.g., stem cell research, which calls into play science, ethics, etc.). Course requirements will include mandatory attendance, occasional readings (where appropriate), and acting as co-leader for at least one session. At course's end students will complete - (a) a written, formal preliminary thesis statement and action plan, endorsed by the thesis advisor, and (b) a brief oral presentation of the thesis statement and plan to the class. All students will participate in critiques of fellow-students' presentations and plans.

NOTE: This course meets on alternate Mondays and Thursdays.

66-501 H&SS Senior Honors Thesis I

Fall and Spring: 9 units

This sequence is open only to those seniors who have been admitted to the H&SS Senior Honors Program. This is the first semester of a two-semester sequence that culminates in an original, year-long independent research or creative project. Thesis topics are selected by faculty and students.

Course Website: <http://www.cmu.edu/dietrich/undergraduate/programs/shp/index.html>

66-502 H&SS Senior Honors Thesis II

Fall and Spring: 9 units

This sequence is open only to those seniors who have been admitted to the H&SS Senior Honors Program. This second semester course is the culmination of an original, year-long independent research project. Research topics are selected by faculty and students.

Prerequisite: 66-501

Course Website: <http://www.cmu.edu/dietrich/undergraduate/programs/shp/index.html>

66-503 Dietrich College Senior Honors Thesis

All Semesters: 18 units

This course is a one-semester alternative to the two-semester Dietrich College Senior Honors Thesis sequence 66-501/66-502. The course is open only to students who have been approved for entry into the Dietrich College Senior Honors Program, and whose senior honors thesis project has been approved as a one-semester undertaking. Thesis topics are selected by faculty and students, and reviewed and approved through the senior honors program application process. The thesis culminates in an original independent research or creative project. Dietrich College senior honors students are also required to participate in the annual Meeting of the Minds Undergraduate Research Symposium, offering either an oral presentation or poster session based on their senior honors thesis.

66-504 Senior Capstone I

All Semesters: 9 units

TBA

66-505 Senior Capstone II

All Semesters: 9 units

TBA

66-506 Senior Capstone

All Semesters

TBA

General Dietrich College Courses

65-201 Humanities Scholars III

Fall: 9 units

Humanities Scholars Program III: Creating Culture (Fall 2018) Culture - which might be broadly defined as the shared experiences of human endeavor - is created not simply by tradition or happenstance, but by conscious actions and interactions of artists, writers, institutions, and other participants in a cultural commons. In Creating Culture, we will examine theories and literature of cultural formation, using Pittsburgh as our primary example.

In many ways, Pittsburgh is a terrific case study: no other American city has reinvented itself more successfully in the past 30 years, and we will be able to draw upon the expertise of key and diverse cultural contributors who were instrumental in that transformation in order to better understand the cultural drivers that fueled the city's resurgence in the late 20th and 21st century. The course will be co-taught by Tim Haggerty, director of the Humanities Scholars Program and Cathy Lewis Long, a CMU alumna and the former director of the Sprout Fund, a non-profit organization dedicated to funding various programs designed to increase civic engagement in Pittsburgh from 2001 to 2018. The course will also draw upon the expertise of stakeholders from government, local foundations, and cultural actors.

Prerequisite: 65-102

Course Website: <http://www.hss.cmu.edu/hsp/>

65-203 Applied Quantitative Social Science II

Spring: 9 units

Applied Quantitative Social Science II is the second course in the QSSS core sequence. Conducted in a seminar format, the course will feature guest lectures from a series of faculty at CMU. Students will discuss ongoing research across the social sciences, and over the course of the semester will develop a research project proposal. Seminar participation is limited to QSSS students.