HPS Undergraduate Courses
Fall 2026 (Term 2271)

HPS 0412 The Newtonian Revolution
MW 8:00-9:15
Kiki Timmermans
In this class we will investigate the transformation of scientific concepts by studying the historical, philosophical, and scientific issues raised by Newton's work in optics and mechanics. We will adopt the methods of integrated history and philosophy of science, whereby understanding is improved through a sustained dialogue between historical investigation and philosophical critical reflection upon the processes and products of a scientific enterprise. We will begin with looking at the traditional notion of a revolution in philosophy of science, and explore the applicability of this notion to the scientific context of sixteenth and seventeenth century England. We will then look closely at the stages in which Newton developed the theory of universal gravitation. This will provide the groundwork for studying the pivotal transformation of the concepts of force, attraction, and inertia, together with the invention of the concept of mass and the cultural reorientation surrounding the nature of the cosmos as a whole. We will then compare and contrast Newton's work in constructing the theory of universal gravitation with his experimental methods in optics. We will then explore the legacy of Newton's work in the subsequent experimental tests of Newtonian gravitation, the codification of modern scientific methodologies, and in the development of central topics in the philosophy of science.

HPS 0430 Galileo & Creation of Modern Science (32243)
TH 9:30-10:45
Paolo Palmieri
Galileo is the father of modern science. This course explores his revolutionary discoveries, his attack on Aristotle's natural philosophy, and his transformation of the notion of science, and his epoch-making clash with the religious authorities of the time.

HPS 0437 Darwinism and Its Critics (29006)
M 6:00-8:30
Zachary Mayne
Charles Darwin's ideas have had an enormous impact on biology and on culture generally. These ideas have been criticized within biology, by philosophers, social theorists and religious fundamentalists. This course studies the historical growth of Darwinism and the criticisms mentioned, and evaluates those criticisms and their impact on the theory.

HPS 0515 Magic, Medicine, and Science (18529) Cross listed as HIST 0089
T 6:00-8:30
Ibrahim Haydar
This course introduces students from all backgrounds to humanistic ecology, an interdisciplinary method of learning which combines the humanities with science. Humanistic ecology teaches how to integrate scientific research, philosophy, pedagogy, literature, and health in a holistic framework. Students will learn about classical forms of self-transformation, healing, and knowing that will help them find original pathways to knowledge and wellbeing.

HPS 0611 Principles of Scientific Reasoning (29488)
TH 2:30-3:45
Marian Gilton
This course will provide students with the skills to understand and assess scientific claims that confront them in daily life. Special attention will be given to reasoning based on samples, evaluating hypotheses and causal claims, as well as common mistakes in scientific reasoning.

HPS 0612 Mind and Medicine (23725, 25797, 27486)
TH 12:00-12:50
TH 1:00-1:50
TH 2:00-2:50
Laura Matthews
Mind and medicine deals with fundamental problems and questions that arise in considering the nature of mental health, mental illness, and branches of medicine that aim to promote mental health and treat mental illness. We will begin by considering the concepts of 'health', 'disease' and 'illness' in general, and several different models of medicine. From there we will move on to a consideration of the nature of explanation in medicine generally. We will examine some explanatory successes in the domain of physical health and disease, and consider how those successes were achieved. In the second half of the course we will look at controversies over the question of whether there is such a thing as mental illness, and if so, how one is to define, diagnose and treat it. In order to better understand what is at stake, we will explore these controversies by focusing on a specific mental illness, schizophrenia. Looking at recent research on schizophrenia will allow us to see the extent to which the kind of understanding we have achieved in physical medicine is or is not to be expected with serious mental illness. Students who successfully complete this course will be able to identify and analyze different philosophical approaches to selected issues in medicine and psychiatry; have gained insight into how to

read and critically interpret philosophical arguments; and have developed skills that will enable them to think clearly about foundational questions as future or current health care providers, policy makers, and consumers. This course is also part of a core sequence leading to certification in the Conceptual Foundations of Medicine Certificate Program, and is a companion course to HPS 0613 (Morality and Medicine) but may be taken independently. The course is of particular interest to pre-medical and pre-health care students.

HPS 0612 Mind and Medicine (34011, 32204, 27488)
M 6:00-8:30
MW 3:00-4:15
MW 4:30-5:45
Nina Atanasova
Mind and medicine deals with fundamental problems and questions that arise in considering the nature of mental health, mental illness, and branches of medicine that aim to promote mental health and treat mental illness. We will begin by considering the concepts of 'health', 'disease' and 'illness' in general, and several different models of medicine. From there we will move on to a consideration of the nature of explanation in medicine generally. We will examine some explanatory successes in the domain of physical health and disease, and consider how those successes were achieved. In the second half of the course we will look at controversies over the question of whether there is such a thing as mental illness, and if so, how one is to define, diagnose and treat it. In order to better understand what is at stake, we will explore these controversies by focusing on a specific mental illness, schizophrenia. Looking at recent research on schizophrenia will allow us to see the extent to which the kind of understanding we have achieved in physical medicine is or is not to be expected with serious mental illness. Students who successfully complete this course will be able to identify and analyze different philosophical approaches to selected issues in medicine and psychiatry; have gained insight into how to read and critically interpret philosophical arguments; and have developed skills that will enable them to think clearly about foundational questions as future or current health care providers, policy makers, and consumers. This course is also part of a core sequence leading to certification in the Conceptual Foundations of Medicine Certificate Program, and is a companion course to HPS 0613 (Morality and Medicine) but may be taken independently. The course is of particular interest to pre-medical and pre-health care students.

HPS 0612 Mind and Medicine (32242)
MWF 10:00-10:50

Caitlin Mace

Mind and medicine deals with fundamental problems and questions that arise in considering the nature of mental health, mental illness, and branches of medicine that aim to promote mental health and treat mental illness. We will begin by considering the concepts of 'health', 'disease' and 'illness' in general, and several different models of medicine. From there we will move on to a consideration of the nature of explanation in medicine generally. We will examine some explanatory successes in the domain of physical health and disease, and consider how those successes were achieved. In the second half of the course we will look at controversies over the question of whether there is such a thing as mental illness, and if so, how one is to define, diagnose and treat it. In order to better understand what is at stake, we will explore these controversies by focusing on a specific mental illness, schizophrenia. Looking at recent research on schizophrenia will allow us to see the extent to which the kind of understanding we have achieved in physical medicine is or is not to be expected with serious mental illness. Students who successfully complete this course will be able to identify and analyze different philosophical approaches to selected issues in medicine and psychiatry; have gained insight into how to read and critically interpret philosophical arguments; and have developed skills that will enable them to think clearly about foundational questions as future or current health care providers, policy makers, and consumers. This course is also part of a core sequence leading to certification in the Conceptual Foundations of Medicine Certificate Program, and is a companion course to HPS 0613 (Morality and Medicine) but may be taken independently. The course is of particular interest to pre-medical and pre-health care students.

HPS 0613 Morality and Medicine (27122, 27123, 27135)
MW 3:00-4:15
MW 4:30 – 5:45
TH 4:00-5:15
TBD

Ethical dilemmas in the practice of health care continue to proliferate and receive increasing attention from members of the health care profession, ethicists, policy makers, and the general public as health care consumers. In this course we will examine a number of ethical issues that arise in the context of contemporary medical practice and research by analyzing articles and decision scenarios. Topics to be covered typically include the physician-patient relationship; informed consent; medical experimentation; termination of treatment; genetics; reproductive technologies; euthanasia; resource allocation; and health care reform. Students who successfully complete this course will be able to identify and analyze different philosophical approaches to selected issues in medical ethics; have

gained insight into how to read and critically interpret philosophical arguments; and have developed skills that will enable them to think clearly about ethical questions as future or current health care providers, policy makers, and consumers. This course is part of a core sequence leading to Certification in the Conceptual Foundations of Medicine Certificate Program, and is a companion course to HPS 0612 (Mind and Medicine) but may be taken independently. The course is of particular interest to pre-medical and pre-health care students.

HPS 0613 Morality and Medicine (28068, 29061)
TH 4:00-5:15
TH 2:30-3:45
Dana Matthiessen
Ethical dilemmas in the practice of health care continue to proliferate and receive increasing attention from members of the health care profession, ethicists, policy makers, and the general public as health care consumers. In this course we will examine a number of ethical issues that arise in the context of contemporary medical practice and research by analyzing articles and decision scenarios. Topics to be covered typically include the physician-patient relationship; informed consent; medical experimentation; termination of treatment; genetics; reproductive technologies; euthanasia; resource allocation; and health care reform. Students who successfully complete this course will be able to identify and analyze different philosophical approaches to selected issues in medical ethics; have gained insight into how to read and critically interpret philosophical arguments; and have developed skills that will enable them to think clearly about ethical questions as future or current health care providers, policy makers, and consumers. This course is part of a core sequence leading to Certification in the Conceptual Foundations of Medicine Certificate Program, and is a companion course to HPS 0612 (Mind and Medicine) but may be taken independently. The course is of particular interest to pre-medical and pre-health care students.

HPS 0621 Problem Solving: How Science Works (32209)
W 6:00-8:30
Diego Cimadom
This course is intended to provide an introduction to science and scientific thinking for students who have not had much contact with science. Its goal is to explain what is distinctive about the scientific approach and its product, scientific theories. It explores what makes scientific claims reliable and how scientific methods are designed to control our natural tendencies to misread nature. The emphasis will be on quantitative approaches

and on showing how the use of number in science greatly extends the reach of our investigative tools.

HPS 1510 Science in Global Perspective (32217)
H 6:00-8:30
Rose Gatfield-Jeffries
Science has never been an exclusive practice of any one society or region. In this course we will explore science as a global phenomenon by considering how different practices and traditions of science developed in disparate global contexts, how science travelled and was transformed through global circulation, and how a global and comparative perspective can inform our understandings of science, its history and its philosophy. Regions and time periods considered may vary from offering to offering. Every course offering will include a comparative component which considers how the circulation of materials, texts, technologies, and people have shaped the historical development of science.

HPS 1602 Race: History, Biology, Psychology, Philosophy)32210)
TH 11:00-12:15
Dana Matthiessen
The goal of this course is to help students gain a thorough understanding of the issues raised by races and racism. Such understanding can only be gained by bringing together several disciplines in an interdisciplinary manner. Thus, we will examine issues about race and racism that arise from biology, history, philosophy, and psychology. In particular, we will examine the following questions: Does genetics show that races are real? Why are racial categories used in medicine? Where does the concept of race come from? Is it a recent historical invention? How has it influenced the sciences? What are races? What is racism? Should we be color-blind? How does race contribute to one's identity? Why do we think about races? Are there differences in intelligence between races? What are racial prejudices? The course will involve reading original articles and book extracts from a range of disciplines, including history, philosophy, and several sciences. These articles will be explained and discussed in class.

HPS 1616 Artificial Intelligence and Philosophy of Science
TH 11:00-12:15
Kamyar Asasi
This course investigates the problem of mechanizing reasoning. For the case of deductive inference, it draws on work in symbolic logic and computation theory. For the case of inductive inference, it draws on work in confirmation theory from philosophy of science and learning theory.

HPS 1620 Philosophy of Biology (32212)
MW 3:00-4:15
Raphael Scholl
Philosophy of biology will consider foundational conceptual issues in biology like the nature and structure of biological explanation, the possibility of laws in evolutionary theory, the relationship between different causal components of biological processes (genetics and development), the problem of species reality and classification, the explanatory character of ascription of biological function, and the extension of biological explanations to human psychology and culture.

HPS 1624 Development of Scientific Medicine (32211)
MWF 11:00-11:50
Sloane Wesloh
This course will explore the history of contemporary scientific medicine, including its sciences (anatomy, physiology, pathology, epidemiology), technologies (diagnostic, surgical, pharmacologic), research methods (clinical trials, biostatistics), and theories and philosophical underpinnings (naturalism, experimentalism, germ theory, the medical model, evidence-based medicine, genetic determinism). Students will come away with an understanding of how the history of medicine illuminates current medical science/practice as well as major topics in the philosophy of medicine and the philosophy of science. Students will read primary historical sources, original research in history of science, and a history of medicine textbook. Classes will consist of a combination of lecture and discussion.

HPS 1653 Intro to Philosophy of Science (26787) Cross listed as PHIL 1610
MW 2:00-2:50
Wayne Wu
This course provides a broad, introductory survey of current issues in philosophy of science and treats philosophical problems such as confirmation, which are common to all sciences, as well as problems peculiar to individual sciences.

HPS 1671 Philosophical Fundamentals of Cognitive Science (34033)
M 6:00-8:00
Brett Park
An overview of the rise of cognitive science as an interdisciplinary field, and the fundamental debates it has engendered. Cognitive science emerged in the twentieth century as a paradigm for studying the mind. Since its beginning, cognitive science has

drawn upon formal developments in philosophy, logic, mathematics, and computer science in order to establish various frameworks for generating and testing theories of cognition. It has sought to integrate, as well as further, the empirical findings of psychology, linguistics, anthropology, and neuroscience. The premises behind this ambitious approach have given rise to significant philosophical discussion. The first half of the course will introduce students to philosophical and empirical developments within the individual disciplines related to cognitive science and will show how they interrelate. The second half of the course is devoted to the central debates: classical computationalism versus connectionism; nativism versus empiricism; representationalism versus anti-representationalism; bottom-up versus top-down approaches; the rationality wars; and so on.

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