HPS 83100

**HPS Colloquium**  T 4:15pm–5:30pm (Howard)
Graduate Students Only
Group Discussion by the HPS faculty and students of a prominent recent work in the history and philosophy of science and research presentation by visiting scholars.

HPS 83602

**History of Science, Technology & Medicine: 1750 to the Present**  Th 3:30pm–6:30pm (Stapleford)
3 Cr. Hr.  
Graduate Students Only
The course will begin by reviewing the several distinct social contexts of late 18th century science, including its relations to technology and medicine. It will then trace the emergence of academic (or more properly, university-based) science, sanctioned by the state and characterized by the emergence of distinct professions, disciplines and/or ways of knowing in the 19th century. The second half of the course will be devoted to tracing these themes in the 20th century, giving particular attention to both theoretical transformations and to the relationships between scientific disciplines, between science and the state, and between science and technology.

**Assignments** include review essays and a final exam. Graduate standing or permission of instructor required.

HPS 93725

**Environmental History**  M 2:00pm–4:30pm (Coleman)
3 Cr. Hr.  
Crosslist: HIST 93632  
Graduate Students Only
This course will give graduate students in history, history of science and other disciplines an introduction to the field of environmental history. Rooted in the activism of the 1970s and 80s, environmental history owes its initial flowering and political verve to the environmental movement. But, whereas as other activist subfields, like African American history, women’s history, and Native American history, have delved into the Theoretical mire to unearth the links between texts and power, subjectivity and truth, authenticity and postmodern pastiche, environmental history has pretty much cruised steadily on, buoyed by the concept of nature. Indeed, a commitment to defend a concept of nature may be the core characteristic of environmental historians. They still believe in some kind of autonomous “out there.” They hold faith that non-human actors and forces play fundamental roles in human events and understandings. This course will investigate how environmental historians have defined and used nature to tell human histories. I want students to come away with an appreciation for the rewards and limits to this approach to the past. I would hope they emerge fierce critics and defenders of the “out there” and prepared to apply the lesson of the past to their own explorations of nature.
History of Philosophy of Science from the Scientific Revolution to 1900 (HOPOS II) TR 11:00am–12:15pm (Howard)
3 Cr. Hr.
Crosslist: PHIL 93812
Graduate Students Only
Much of the history of philosophy from the early modern period through the nineteenth century can be written as the history of philosophical reactions to the development of modern science, especially the physics of Newton and Maxwell, but to some degree also the chemistry, biology, physiological psychology, and sociology that came into their own in the nineteenth century. What was the epistemic basis of this new scientific knowledge? What was the proper method of science? What were the scope and limits of this new science?

This course will trace the main themes in the development of the philosophy of science during this period. We will start with early reactions to Newton on the part of Berkeley, Hume, Kant, and Reid. In the nineteenth century, we will chart the rise of distinctive schools of thought as the philosophy of science becomes conscious of itself as a distinct area within philosophy, including the positivism of Comte, the inductivism of Mill, the hypothetico-deductivism of Whewell and Bernard, the Scot's school's emphasis on the fundamental role of models in science, and the neo-Kantianism of Helmholtz. As we reach the threshold of the twentieth century we will pay special attention to such precursors of logical empiricism as Mach, Poincaré, and Duhem.

The readings will be a mix of primary and secondary sources.

Requirements: Students will be required to write a term paper and a take-home final examination.

Science and Social Values MW 5:15pm–6:30pm (Kourany)
3 Cr. Hr.
Crosslist: PHIL 93821
Graduate Students Only
It is now the fiftieth anniversary of C.P. Snow's famous “Two Cultures” essay, and not only are aspects of Snow's science/humanities divide still in place, but the divide has seemed here and there to harden into hostility. At the same time, advances in nanoscience and technology, genetics, robotics, and other areas of science augur peril as well as promise, peril that the resources of the humanities might do much to ameliorate. What contribution might philosophy offer?

We will begin by reflecting on Snow's classic essay, then move on to a new book by philosopher of science John Forge, The Responsible Scientist: A Philosophical Inquiry (2008), and then consider a selection of essays that complicate the picture Forge presents. The burden of these essays is that a variety of social values already shape (for good or ill) the landscape in which Forge's responsible scientist operates. This will encourage a shift to a more comprehensive approach to science and we will consider the offerings of at least two other books—Philip Kitcher's Science, Truth, and Democracy (2001) and Helen Longino's The Fate of Knowledge (2001). Of course, questions concerning the divide between facts and values, the nature of the “pure science” / “applied science” distinction, the attractions of scientific autonomy vs. the social
direction of science, and the conditions of scientific rationality and scientific objectivity will engage us throughout the term.

The style of the course will be discussions rather than lectures, and these will be led by members of the class.

**Requirements** will include two papers as well as class presentations.

HPS 93864  
**Chance and Evolution**  T  6:30pm–9:00pm (Ramsey)  
3 Cr. Hr.  
Crosslist: PHIL 93864  
Graduate Students Only

Thirty-five years ago, Jacques Monod published his famous work, Chance and Necessity. Since the publication of this founding work, there has been much debate over the nature of chance in evolution. It seems that contemporary evolutionary theory requires an objective notion of chance. For example, some have argued that natural selection is merely an empty tautology: If natural selection is "survival of the fittest" and the fittest are simply those who survive (and reproduce), then natural selection does indeed appear to be circular. Theorists have attempted to get around this problem by proposing that the organism’s fitness is a probabilistic propensity to produce offspring, not actual offspring produced. While this does indeed avoid the circularity, it seems to rely on a notion of objective chance. But if there is chance in evolutionary biology, where does it come from? Does it somehow percolate up from chance in quantum theory? Or is there such a thing as macro probabilities that are not merely based in micro probabilities? And if there is no such thing as objective macro probabilities, what does this say about how evolutionary theory should be conceived? **Requirements** include in-class participation (including occasional presentations) and a term paper.

HPS 78599  
**Thesis Direction** (Howard)  
Thesis direction for terminating Master’s students.

HPS 78600  
**Non–resident Thesis Direction** (Howard)  
Thesis direction for terminating Master’s students.

HPS 96697  
**Directed Readings**

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HPS 98699

Research and Dissertation (Howard)
Dissertation research for Ph.D. students.