

## Philosophy 128

U.C., Berkeley

Spring 2010

### Philosophy of Science

This course treats four topics of central importance to general philosophy of science. We ask what makes something a scientific explanation, what is required for observations to support (confirm) scientific theories, whether simplicity is a guide to truth, and whether the success of science is a reason to believe its theories are true. Topics covered include the problem of induction, predictivism, Ockham's Razor, and the advantages and disadvantages of Bayesianism. Prerequisite: one course in philosophy.

**Classes:** meet MWF 3-4, 220 Wheeler. Classes will be a mixture of lecture and discussion.

**Professor:** S. Roush  
233 Moses Hall  
[roush@berkeley.edu](mailto:roush@berkeley.edu)  
(Please do not expect to reach me by phone or phone message.)  
[philosophy.berkeley.edu/roush](http://philosophy.berkeley.edu/roush)  
Office hours: Monday 1-3, and by appt.

**Graduate Student Instructor:** Mike Caie  
[caie@berkeley.edu](mailto:caie@berkeley.edu)

**Texts:** The main text for the course is a coursepack available online at <http://www.universityreaders.com/students/instructions>. In addition you should purchase *Introduction to the Philosophy of Science*, written and edited by Merrilee Salmon and others, at the campus store. Readings should be done before the classes for which they are assigned, and will often need to be studied again after class. Note that our quizzes will cover the readings for the *coming* week, so that the topic will not yet have been discussed in class before you are tested on it. You will be given study questions ahead of time for each week to guide you toward the important issues in the reading.

**Assignments:** Students in this course will take at least five quizzes at times that will not be announced ahead of time, and will write one short paper (3 pp.) and one longer paper (4 pp.). The papers will be on the major topics of the course. For each paper you will pick your topic from a sheet of assigned topics. The due dates are below.

**Turning in papers:** You will turn in your papers in hard copy to Mike's mailbox in 301 Moses. Papers are always due at 5pm., and 301 Moses is typically locked after 5.

**To receive a passing grade in the course you must complete all assignments.**

**Late Work:** Late work burdens the GSI. It will affect your grade in proportion to its inexcuseability.

**Grade:** Your grade will break down as follows:

At least five quizzes – 30%  
Paper 1 – due 2/26 – 35%  
Paper 2 – due 5/7 – 40%

Note that this implies there is *no final exam*.

**Course website:** This course has a website on bSpace. If you are registered for the course, you should receive announcements when resources are uploaded or announcements posted.

**Disabilities:** Any student who has a disability requiring assistance or accommodation, or for whom I should have emergency medical or other information, should please speak to me in the first weeks of class so that this can be arranged.

## **Statement on Academic Integrity, Citation, and Plagiarism**

Any test, paper or report submitted by you and that bears your name is presumed to be your own original work that has not previously been submitted for credit in another course unless you obtain prior written approval to do so from your professor.

In all of your assignments, including your homework or drafts of papers, you may use words or ideas written by other individuals in publications, web sites, or other sources, but only with proper attribution. "Proper attribution" means that you have fully identified the original source and extent of your use of the words or ideas of others that you reproduce in your work for this course, usually in the form of a footnote or parenthesis. In this course any style of citation is acceptable as long as it is applied consistently throughout a piece of work. All the bibliographic information for the readings is included in the contents page of the course pack (first page).

As a general rule, if you are citing from a published source or from a web site and the quotation is short (up to a sentence or two) place it in quotation marks; if you employ a longer passage from a publication or web site, please indent it and use single spacing. In both cases, be sure to cite the original source in a footnote or in parentheses.

If you are not clear about the expectations for completing an assignment or taking a test or examination, be sure to seek clarification from your professor or GSI beforehand.

Finally, you should keep in mind that as a member of the campus community, you are expected to demonstrate integrity in all of your academic endeavors and will be evaluated on your own merits. So be proud of your academic accomplishments, and of thinking for yourself, and help to protect and promote academic integrity at Berkeley. The consequences of cheating and academic dishonesty – including punishment and a formal discipline file, possible loss of future internship, scholarship, or employment opportunities, and denial of admission to graduate school – are simply not worth it. The whole issue is taken more seriously than you may imagine, in all professional areas.

**Class Schedule - Please bring readings to class.**

Days Readings

**Scientific Explanation**

- 1/20 – 1/22 Hempel, *Aspects of Scientific Explanation*, pp. 333-54, 412-415, 364-403 cp  
(*Philosophy of Science*, pp. 7-31)
- 1/25 – 1/29 Salmon, 'Statistical Explanation,' cp  
(*Philosophy of Science*, pp. 31-33)
- 2/1 – 2/5 Kitcher, 'Explanatory Unification,' cp  
(*Philosophy of Science*, pp. 33-35)
- 2/8 – 2/10 Lewis, 'Causal Explanation,' cp

**Confirmation**

- 2/12 – 2/17 Hume, *Enquiry*, §§ IV, V, cp  
(*Philosophy of Science*, pp. 42-49, 55-57)
- 2/17 – 2/22 Popper, *Objective Knowledge*, ch. 1  
Salmon, 'Rational Prediction,' cp  
(*Philosophy of Science*, pp. 58-66)
- 2/22 – 2/26 Howson and Urbach, *Scientific Reasoning*, 117-131, cp  
(*Philosophy of Science*, pp. 66-95)
- 2/26 *First Paper Due* – questions will be distributed
- 3/1 – 3/5 Whewell, Selections on Consilience, cp  
Hitchcock and Sober, 'Prediction vs. Accommodation,' *online*
- 3/8 – 3/12 Barnes, 'Predictivism for Pluralists,' *online*

### **Simplicity**

- 3/15 – 3/19 Forster, ‘Bayes and Bust: Simplicity as a Problem ...,’ §§ 1, 2, 3, 6, *online*
- 3/22 – 2/26 *Spring Break* – no class
- 3/29 – 4/2 Forster and Sober, ‘How to Tell When Simpler ...,’ *online*
- 4/5 – 4/9 Kelly and Glymour, ‘Probability is Not ...,’ cp

### **Realism**

- 4/12 – 4/16 Laudan, ‘A Confutation of Convergent Realism,’ cp
- 4/19 – 4/23 Musgrave, ‘The Ultimate Argument,’ cp
- 4/26 – 4/30 Roush, ‘Optimism about the Pessimistic Induction,’ pdf
- 5/3 – 5/7 No class
- 5/7 *Second Paper Due* – questions will be distributed

Locations of online readings:

Hitchcock and Sober, 'Prediction vs. Accommodation ... ,' *The British Journal for the Philosophy of Science* 55 (2004), 1-34.

Barnes, 'Predictivism for Pluralists,' *The British Journal for the Philosophy of Science* 56 (2005), 421–450.

Forster, 'Bayes and Bust: Simplicity as a Problem ...,' §§ 1, 2, 3, 6, *The British Journal for the Philosophy of Science* 46 (Sep., 1995), 399-424.

Forster and Sober, 'How to Tell When Simpler ...,' *The British Journal for the Philosophy of Science* 45 (Mar., 1994), 1-35.

You can look these up by the name of the journal, on the Berkeley libraries website. The journals are accessible only via a Berkeley connection, but you can set up a Berkeley connection on your personal computer by using your ID. See the library website (under "Help," "connecting from off campus") for how to set up a proxy server.