Philosophy 209: Philosophy of Science

Class meets Monday, Wednesday and Friday from 2:40 to 3:55 in OU408.

Your host: Prof. Michael P. Wolf
Office: 201 Humphrey House
Phone: 7-7077
E-mail: wolf@kzoo.edu

Office Hours: Mondays and Wednesdays 9:00-11:00 and by appointment

Required Texts
Boyd, Gasper and Trout. *Philosophy of Science*.
(Some additional readings will be made available as reserves or photocopies in class.)

What Is This Course About?
My aim in this course, as in every course I teach, is to make you do some philosophy. Just what it means to "do some philosophy" is a matter of some debate, though. If you asked twenty philosophers what it means to do philosophy, you would get somewhere between twenty-five and thirty answers. Just which questions are important, and just how we ought to pursue answers for them are not matters on which philosophers agree. The one element that seems to be common to all these conceptions of philosophy seems to be that we must give and ask for reasons for what we believe. We may judge that some reasons are better than others, and so some views may be more plausible to us. Giving and asking for reasons is a practice that belongs to all rational animals - Earthly or extraterrestrial, human or not - and this is what we will focus our attention on this course. The goal of this course is not to provide you with information (names, dates, and famous quotes) that you can recite at cocktail parties in the future, although in many cases, knowing those details is an important part of taking part in the class. Rather, my goal here is to teach you (or improve upon) a certain kind of skill: the skill of giving and asking for reasons, and evaluating the reasons other may give.

Having said that, the more narrow and informative formulation of our course topic is the philosophy of science. Just what counts as a good theory in the philosophy of science is a contentious matter, especially among people who place a great deal of credence in the content of these theories. I have also heard more than one practicing scientist assert that philosophers should mind their own business and keep out of the laboratories so the "real" work can get done. In defense of us philosophical types, I have also heard some very smart scientists give some very glib, unsightly answers to many of these questions. If we have a task here, it is not to interfere with science as it is practiced, but to uncover what makes it so interesting. (Perhaps it will not turn out to be as interesting as we thought, but that would be a very interesting conclusion in its own right.) We will be asking questions about what makes good science vs. bad science, why some ways of building theories give us authority while others do not, what the status of laws of nature is, and whether science can be objective, just to name a few topics. We will do this by looking at recent authors on a number of topics. In most cases, these authors have been selected because they represent opposing views on a particular subject.

Assessment
Class participation is an important issue to me, especially in a small class like this. I expect you to come to class with the readings done and ready to discuss them. In order to get you involved in these ways and as an exercise in immersing yourself in the debates and details of real developments in the history of science, each student in this class will take part in a scheduled presentation. The presentation will involve offering an account of the emergence of a new theory or portion of a theory, an explanation of the context in which this took place, the problems it addressed and the features that led to its adoption. You will be expected to provide notes on what you expect to present a week in advance so that it may be evaluated in advance. Keep in mind
that you are presenting to an audience that may not exclusively include scientists or scientists-in-training and pitch it at an appropriate level. The amount of preparation expected here is roughly the same as a five-page paper. Details of the format and topics will be made available as we progress. This will count for 20% of your final grade. Information on topics and requirements is available.

There will be two major paper assignments, each about 3000-3500 words (8-10 pages), due at roughly the mid- and endpoints of the semester. Each of these is worth 40% of your final grade. We will discuss topics and the way in which you should approach this assignment as the semester progresses.

I should mention a few things in closing. First, you are of course bound by the honor code here and any form of plagiarism will be severely punished. (Speak to me or consult a student handbook if you are unsure what counts as plagiarism.) This does not mean that you cannot use another source, or discuss and consult with your classmates about your assignments. I permit you to do the former and strongly encourage you to do the latter, so long as all the sources and classmates in question are properly cited in your paper. Finally, be forewarned that I reserve the right to lower the grades of papers given to me whose grammar and spelling do not meet college-level standards.

A Tentative Syllabus

Class 1. (March 26): Introduction

Interpreting Theories

Class 2. (March 28): Logical Positivism

Class 3. (March 30): NO CLASS

Class 4. (April 2): Logical Positivism
Read Schlick and Hempel (Chapter 16)

Class 5. (April 4): Logical Positivism
Read Schlick and Hempel (Chapter 16)

Class 6. (April 6): Contra-Positivism
Read Scriven (handout)

Class 7. (April 9): Contra-Positivism
Read Scriven (handout)

Class 8. (April 11): Falsifiability
Read Popper, pp. 99-117.

Class 9. (April 13): Falsifiability
Read Popper, pp. 99-117.

Class 10. (April 16): Conceptual Paradigms
Read Kuhn

Class 11. (April 18): Conceptual Paradigms
Read Kuhn
**Class 12. (April 20):** Conceptual Paradigms
Read Kuhn

**Class 13. (April 23):** Anti-Realism
Read Van Fraassen, "To Save the Phenomena"

**Class 14. (April 25):** Anti-Realism
Read Van Fraassen, "To Save the Phenomena"

**Class 15. (April 27):** Realism

**Class 16. (April 30):** Realism

**Class 17. (May 2):** Postmodernist Critiques
Read Hacking "Experimentation and Scientific Realism"

**Class 18. (May 4):** PRESENTATIONS

*First Paper Due May 4 - Click here for topics*

**Class 19. (May 7):** Postmodernist Critiques
Read Hacking "Experimentation and Scientific Realism"

Issues in the Different Fields

**Class 20. (May 9):** Philosophy of Biology
Read Kitcher "1953 and All That: A Tale of Two Sciences"

**Class 21. (May 11):** PRESENTATIONS

**Class 22. (May 14):** Philosophy of Biology
Read Kitcher "1953 and All That: A Tale of Two Sciences"

**Class 23. (May 16):** Philosophy of Psychology
Read Dennett "Three Kinds of Intentional Psychology" sections 1 and 2

**Class 24. (May 18):** PRESENTATIONS

Postmodernist Critiques

**Class 25. (May 21):** Philosophy of Psychology
Read Churchland "Eliminative Materialism..."

**Class 26. (May 23):** Philosophy of Physics
Read Shimnoy "Metaphysical Problems in the Foundations of Quantum Mechanics"
(You may also want to check out the following site on quantum mechanics.)

**Class 27. (May 25):** PRESENTATIONS

**Class 28. (May 30):** Philosophy of Physics
Read Shimnoy "Metaphysical Problems in the Foundations of Quantum Mechanics"
Class 29. (June 1): PRESENTATIONS

Second Paper Due June 6 - Click here for topics

(Home)