

PHLB70-Philosophy of Science

Professor: Dr. Dustin Stokes
Section: PHLA10H3 F
Lectures TU 3-5/THU 3-4 Bladen W: B264

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Course description

This course concerns fundamental issues in the scientific explanation of the world. The course divides into the following three general areas.

Scientific explanation: We generally assume that science *explains* the world around us. How does it do this? That is, what relation obtains between the claims made by science and the (descriptions of) phenomena that scientists try to understand? This is a philosophical question, and answering it requires clarifying the nature of scientific method, the role of scientific laws, and the metaphysics of causation. We will consider different and opposing answers to these and other questions concerning explanation.

Epistemology of science: One might think of science as a systematic quest for knowledge. As such, it must use methods to support and ideally confirm its claims and theories. How does it do this? How confident should we be in our scientific theories? How does observation and experiment support a thesis? Can scientific theories be conclusively shown to be true (or false)? And what difference does context make to how theories are assessed for truth?

Philosophy of mind and cognitive science: As a way of applying some of the lessons we learn from the above considerations, we will consider some important issues from contemporary cognitive science. First, are perceptual observations (or more simply, just perceptual experiences: our visual, auditory, and other sensory experiences) neutral with respect to our beliefs and theories, or are they somehow influenced by those theories? Second, most philosophers and scientists today aim to explain the mind in terms of the brain. But what kind of scientific explanation is appropriate, given the subjective “point-of-view specific” nature of conscious experience versus the objective “point-of-view neutral” nature of scientific explanation? Can there ever be a complete science of the mind?

Course materials:

All course materials are available online via the course blackboard site. ALL readings will be online. Lecture notes, essay assignments, announcements, and other information will also be made available on this site. The portal may be accessed via: <https://portal.utoronto.ca/webapps/portal/frameset.jsp> (You must login using your UTORid and password.)

Evaluation:

10% Participation/attendance/discussion
25% Short essay 1 DUE: Thu 22 Oct (questions assigned 15 Oct)
25% Short essay 2 DUE: Thu 19 Nov (questions assigned 12 Nov)
40% Final exam DATE TBA

The short essays might also be thought of as take-home exams. You will be given a short list of questions, from which you will choose and respond to one. The questions will be distributed in class, and the papers are to be submitted the following week at the start of lecture. Your responses should be concise and to the point, and should be between 750-1250 words (3-5 pages).

The participation component is mostly composed of participation in discussion group sessions, held in class. Unless I announce otherwise, the discussion sessions will take place on: **1 Oct., 22 Oct., 12 Nov., 1 Dec.**

The final exam will be comprehensive and essay-style, but like the short papers, you will have choices between questions.

General:

This is a writing intensive course. All of the work/examinations will be written. Your papers will be graded not only on content, but also on grammar, writing mechanics, style, etc. The UTSC writing centre can be found online here:

<http://www.utsc.utoronto.ca/~ctl/twc/index.html>

I also recommend this for writing philosophy papers:

<http://www.jimpryor.net/teaching/guidelines/writing.html>

Plagiarism and academic offenses of any kind will not be tolerated. You should familiarize yourself with the university guidelines and policies on academic integrity:

<http://www.utoronto.ca/academicintegrity/resourcesforstudents.html>

Late work/exams are allowed only with the submission of an official University of Toronto Medical Certificate or a letter from your registrar (or other university authority). **Unexcused late work will NOT be accepted.**

If you require special test-taking or note-taking accommodations, please see me.

(Tentative) Reading/discussion schedule:

*All readings available in pdf on course blackboard website.

Week 1 *Introduction*
10 Sept Rosenberg, 'Why philosophy of science?'

Week 2 *Logical positivist roots*
15/17 Sept Ayer, Excerpts from *Language, Truth, and Logic*
Schlick, 'The future of philosophy'

SCIENTIFIC EXPLANATION AND REDUCTION

Week 3 *Empiricism and scientific explanation*
22/24 Oct E. Nagel, 'Patterns of scientific explanation'
Hempel, 'Two basic types of scientific explanation'

Week 4 *Scientific Laws*
29 Sept-
1 Oct Carnap, 'The Value of Laws: Explanation and prediction'
Discussion groups 1 Oct

Week 5 *Post-positivist alternatives: Pragmatist and Unification theories*

6/8 Oct Van Fraassen, 'The pragmatics of explanation'
Kitcher, 'Explanatory unification and the causal structure of the world'

Week 6 *Reduction*

13/15 Oct E. Nagel, 'Issues in the logic of reductive explanation'
Feyerabend, 'Explanation, reduction, and empiricism'

THE EPISTEMOLOGY OF SCIENCE

Week 7 *Testing theories: Empiricism and confirmation*

20/22 Oct Hume, Excerpts from *Enquiry Concerning Human Understanding*
Russell, 'On induction'
SHORT ESSAY 1 DUE/Discussion groups 22 Oct

Week 8 *Testing theories: Falsifiability*

27/29 Oct Popper, Excerpts from *The Logic of Scientific Discovery*

Week 9 *Challenges from pragmatism and holism*

3/5 Nov Quine, 'Two dogmas of empiricism'

PHILOSOPHY OF MIND AND COGNITIVE SCIENCE

Week 10 *Observation: Theory-neutral or theory-laden?*

10/12 Nov Hanson, 'Seeing and seeing-as'
Discussion groups 12 Nov

Week 11 *Observation and perception: Theory-neutral or theory-laden?*

17/19 Nov Churchland, 'Perceptual plasticity and theoretical neutrality'
Fodor, Reply to Churchland
SHORT ESSAY 2 DUE 19 Nov

Week 12 *Reductive explanation and consciousness*

24/26 Nov T. Nagel, 'What is it like to be a bat?'
Chalmers, 'The puzzle of conscious experience'

Week 13 *The problem of consciousness continued*

1 Dec **Discussion groups 1 Dec.**

Resources:

All of the readings will be primary sources. This material will be challenging. You might find some of the following resources helpful.

-For general philosophy resources, I suggest both *The Cambridge Dictionary of Philosophy*, ed. Audi, R. (1999) and *The Oxford Dictionary of Philosophy*, ed. Blackburn, S. (1994). Online, try the Stanford Encyclopedia of Philosophy at <http://plato.stanford.edu/>

-For introductory texts on philosophy of science, try Rosenberg, A., *Philosophy of Science: A contemporary introduction* (Routledge 2000) or Godfrey-Smith, P. *Theory and Reality* (University of Chicago Press 2003)