PHIL 2810/STS 2831: Introduction to Philosophy of Science  
Fall 2013  
TTh 9:05-9:55 Goldwin Smith 158, plus discussion section  
Professor North (north@cornell.edu)  
TA Marta Heckel (mah437@cornell.edu)

We will discuss some central questions about the nature of scientific theory and practice. What makes a discipline a science? Does science discover the objective truth about the world? How, and why, do scientific theories change over time? To what extent do observation and experiment determine which theories we accept? What is a good scientific explanation? What are laws of nature? Does physics have a special status compared to other sciences?

Readings


Readings not in this book will be available online or handed out in class.

Requirements and grading

Two midterm exams and one cumulative final exam, all in-class. Each midterm will count for 25% of your final grade and the final will count for 40% of your grade. The exams will comprise short-answer questions (a few paragraphs each). Study questions will be handed out in advance; exam questions will be taken from these study questions. The first midterm will be in class on Tuesday, October 8. The second midterm will be in class on Tuesday, November 19. The final is on Thursday, December 19 at 2:00 pm.

Attendance at lectures and discussion sections is mandatory. Attendance and participation in lectures and sections will count for 10% of your final grade. Participation in class discussion can only help your grade; lack of participation won't hurt your grade. Poor attendance can lower your grade. If you miss a class, it is your responsibility to get the notes and any relevant announcements from a classmate.

Academic integrity

Each student in this course is expected to abide by the Cornell University Code of Academic Integrity. Any work submitted by a student in this course for academic credit will be the student's own work. For this course, collaboration is allowed in discussing study questions for exams; answers on exams in class must be your own.

Discussion sections

Monday 11:15–12:05 Goldwin Smith G22  
Wednesday 3:25–4:15 Goldwin Smith 158
Office hours
Marta Heckel: Monday 1:00-2:00 pm, Goldwin Smith 223
Professor North: Tuesday 10:00-11:00 am, Goldwin Smith 235

Schedule
Details are subject to change during the semester. Readings are listed next to the
date they will be discussed. Page numbers refer to the textbook.

What is science?
Aug. 29: Introduction; Popper, “Science: Conjectures and Refutations,” 3-10
Sept. 3: continue with Popper
Sept. 5: Kuhn, “Logic of Discovery or Psychology of Research?”, 11-19 and
Lakatos, “Science and Pseudoscience,” 20-26
Sept. 10: continue with Lakatos and general question of demarcation

Rationality, objectivity, and values in science
Sept 19: Longino, “Values and Objectivity,” 144-164 and Okruhlik, “Gender
and the Biological Sciences,” 165-180

Holism and underdetermination
Sept. 24: Duhem, “Physical Theory and Experiment,” 227-249
Sept. 26: Quine, “Two Dogmas of Empiricism,” 250-270

Induction, prediction, and confirmation; ravens and grue
Oct. 1: Lipton, “Induction,” 390-405
Prediction,” 412-423

Oct. 8: MIDTERM EXAM
You already know the date, so plan ahead. No excuses or postponements.
The exam will cover all of the above material.

Optional: Hesse, “Ramifications of ‘Grue’,” available through JSTOR:
Bayesian confirmation, replies to ravens and grue

Oct. 24: same reading as above

Scientific explanation

Nov. 5: Kitcher, “Explanatory Unification,” 711–734

Laws of nature

Nov. 7: Ayer, “What is a Law of Nature?”, 816–832

Nov. 19: MIDTERM EXAM
You already know the date, so plan ahead. No excuses or postponements. The exam will cover all of the material since the last midterm.

Realism and instrumentalism

Nov. 26: Van Fraassen, “Arguments Concerning Scientific Realism,” 1060–1082

Intertheoretic reduction

Dec. 5: Fodor, “Special Sciences (or: The Disunity of Science as a Working Hypothesis),” 954–969

Final exam: December 19, 2:00 pm
Mark your calendars now and plan ahead. No excuses or postponements. The exam will be cumulative, covering all the material from the semester.