

PHIL 145

Philosophy of Science

Gil Hersch

Summer Session II, 2015

Class schedule: Tuesday and Thursday, 2 pm–4:50 pm, HSS 2305A.

Office hours: Tuesday and Thursday 1–2 pm (and by appointment), HSS 8037.

Class website: ted.ucsd.edu

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What, if anything, distinguishes sciences such as physics from ‘pseudosciences’ such as astrology? What is it for a scientific theory to explain some phenomenon? How can highly idealized scientific models tell us anything useful about the real world? Should values influence scientific theorizing or should science be ‘value-free’? Can the “special sciences” be reduced to one fundamental science? These are just a few of the philosophical questions regarding science we will examine in this class.

What will I learn in this class?

By the end of this class you will be able to:

- Explain and illustrate some of the main philosophical issues raised by science.
- Compare and evaluate rival philosophical views about science, its method, its evolution, etc.
- Define concepts (e.g. induction or paradigm) that are key in philosophical discussions of science.
- Be comfortable using the philosophical method to approach questions regarding science that the scientific method cannot address.

By the end of this class you will improve your skills in:

- Reading and analyzing complex philosophical texts.
- Constructing coherent philosophical arguments.
- Writing papers defending a philosophical thesis.
- Conversing and reflecting on methodological questions in science.

What do I need to have?

- “Theory and Reality” by Peter Godfrey-Smith.
- An iClicker, in case you do not already have one. **Please register your iClicker on the class’s Ted website before Thursday, August 6.**
- Both the book and iClicker can be acquired from the UCSD bookstore, among other places.

What do I need to do to get a grade?

1. *Class participation* (10%): Your participation grade will be determined based on the quantity and quality of your contributions to class discussions. We will use peer-instruction techniques (with iClickers), so there will be many opportunities for you to contribute throughout the term.
2. *Writing assignments and reading quizzes* (20%): There will be three short writing assignments. These can be found on the schedule at the end of the syllabus. There will be a reading quiz for **every** class on Ted. Students must submit their writing assignments and quizzes through Ted by 11:59 pm on the day before class (e.g. by 11:59 pm on August 11 for the assignment corresponding to the readings assigned for the August 12 class).
3. *Midterm paper* (30%): I will circulate the prompt for the midterm paper by Tuesday, August 18. The paper itself will be due by 8:00am on **Monday**, August 24. Your paper should be between 1,500 and 2,000 words long. In class we will discuss the sort of thing I am looking for in your term paper. But in grading your essay I will be looking for three things, weighted roughly equally:
 - Comprehension: understanding of the concepts and ideas discussed in the essay.
 - Clarity: presentation of the ideas and concepts in a clear and concise manner.
 - Engagement: serious, sincere and independent thinking about the items under discussion.
4. *Final exam* (40%): Ahead of time, you will be given six questions to think about, of which three will be chosen for the exam. You will write essays on two.

What are the course policies?

- *Academic integrity*: I take academic integrity very seriously, and I expect you to take it equally seriously. Academic stealing, cheating and fraud are strictly prohibited, as is plagiarism. You can review the University’s Policy on Integrity of Scholarship here: <http://senate.ucsd.edu/manual/appendices/appendix2.pdf>. If you violate the University’s Policy on Integrity of Scholarship, you will be reported to the Academic Integrity Office, and I will seek the harshest penalty permitted.

If you have any concerns about academic integrity, whether questions about the importance of academic integrity or about what is or is not permitted on specific assignments, please talk with me or with the Teaching Assistant.

- *Attendance and classroom behavior*: You are expected to attend every class **on time** and to have read the assigned material ahead of time. Unexcused absences or disruptive classroom behavior will have a negative effect on your participation grade.
- *Laptops and electronics* Use of computers, tablets, smartphones, and other electronic devices is not allowed in class, except with written permission from, for example, the Office for Students with Disabilities.
- *Late papers*: Late papers will **not** be accepted and graded as a 0. Exceptions to this policy will only be made in the case of a serious extenuating circumstance (e.g. emergency medical or family problem) supported by appropriate evidence.
- *Turnitin*: Students agree that by taking this course, their midterm papers will be subject to submission for textual similarity review to **turnitin.com** for the detection of plagiarism (via the Ted interface). All submitted papers will be included as source documents in the **turnitin.com** reference database solely for the purpose of detecting plagiarism of such papers. Use of the **turnitin.com** service is subject to the terms of use agreement posted on the **turnitin.com** site.
- *Office for Students with Disabilities*: Students requesting accommodations for this course due to a disability must provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD) which is located in University Center 202 behind Center Hall. Students are required to present their AFA letters to instructors (please contact me privately as early as possible) and to the OSD Liaison in the department in advance so that accommodations may be arranged. For further information, see the OSD website (<http://disabilities.ucsd.edu>).

What is the schedule? What are the readings? And what are the assignments?

Date	Topic and reading	Assignment
August 4	<i>Course introduction, logic and arguments</i> Ruse - 'Creation Science Is Not Science'	
August 6	<i>Demarcating Science: Pseudo-Science</i> Laudan - 'Science at the Bar—Causes for Concern' Goldacre - 'Bad Science' ch. 4 - Homeopathy	
August 11	<i>Beyond a Naïve View of Science: Induction and Falsification</i> PGS ch. 3. Induction and Confirmation PGS ch. 4. Popper: Conjecture and Refutation	Defend yourself – why is your discipline not pseudo-science?
August 13	<i>Beyond a Naïve View of Science: Scientific Structure</i> PGS ch. 5. Kuhn and Normal Science PGS ch. 6. Kuhn and Revolutions	
August 18	<i>Some Tough Problems in Science: Scientific Realism</i> PGS ch. 12. Scientific Realism Hacking - 'Experimentation and Scientific Realism'	Summarize the basic paradigm in a class-mate's science
August 20	<i>Some Tough Problems in Science: Models and Explanation</i> PGS ch. 13. Explanation Morrison - 'Models as Autonomous Agents'	
August 24	Midterm paper due	
August 25	<i>Values in Science: The Value-Free Ideal</i> Douglas - 'Rejecting the Ideal of Value-Free Science' Betz - 'In Defence of the Value-Free Ideal'	
August 27	<i>Values in Science: Alternative Views of Science</i> PGS ch. 8. The Challenge from Sociology of Science PGS ch. 9. Feminism and Science Studies	
September 1	<i>Unification and Diversity: The Unity of Science</i> Oppenheim and Putnam - 'The Unity of Science as a Working Hypothesis' (sections 1-4) Fodor - 'Special Sciences (or, the Disunity of Science as a Working Hypothesis)'	Discuss the values that come up in a real world policy-related scientific issue (anything but global warming)
September 3	<i>Unification and Diversity: The "Special Sciences"</i> Rosenberg - 'Philosophy of Science' Ch. 6 Friedman - 'The Methodology of Positive Economics'	
September 5	Final exam	