HISTORY AND PHILOSOPHY OF SCIENCE

PHIL 240H, Fall 2007
(cross list: HIST 240H)
MWF 12:10-1:00, LA 244

Professor: Dr. Stephen Grimm
Office: LA 147
Office Hours: MW 3:10-4:30, and by appointment
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Course description

This course introduces students to issues in the philosophy of science via (a) a selection of readings from scientists’ original works, and (b) contemporary reflections on the nature of science and scientific inquiry. We will discuss issues concerning the nature of scientific knowledge claims, scientific progress, and the relationship between science and religion. Our readings from the history of science will come mainly from the ancient world (esp. Aristotle) and from crucial early modern figures (such as Galileo, Boyle, and Descartes). The course material should be accessible to non-scientists, and scientific examples will be introduced in non-technical vocabulary.

Readings for the course

The Scientific Background to Modern Philosophy, ed. Michael Matthews

The Structure of Scientific Revolutions, Thomas Kuhn

The Empirical Stance, Bas van Fraassen

Optional: The Scientific Revolution, Steven Shapin

Additional readings will be available via the Mansfield Library’s “Course Reserve Materials” system (abbreviated as “ER,” for “electronic reserve,” in the schedule of readings). The “Course Reserve Materials” link can be found on the Mansfield Library’s homepage. The password for our course is “science.”

Requirements for the course

Readings

For the most part, we will average fewer than 20 pages of reading per class. I alert you in advance, however, that philosophy texts are typically very difficult, and must be read with care and active engagement. You will probably find that you need to read the assignment two or three times to get a good sense of what’s going on, so be sure to set aside the appropriate amount of time in advance.
**Quizzes**

There will be five brief, multiple-choice quizzes over the course of the semester, which are designed to test your knowledge of the reading and your attention to class discussions. If you miss class, or are late for the beginning of the quiz, you will receive a **zero** for that assignment. Make-ups will not be available.

Leaving class immediately after taking the quiz is also not permitted. (You would think that would go without saying, but history suggests otherwise!)

**NB:** As you can see below, taken together the quizzes count for 25% of your final grade—in other words, a significant portion! If you’ve been doing the reading carefully and taking good notes in class, they should not be a problem. If you are prone to skip classes and/or fail to keep up with the reading, however, you will likely struggle with the quizzes; given that they represent a quarter of your grade, they should therefore be taken seriously from the outset.

**Exams**

There will be three exams over the course of the term. The date for the final exam, in particular, is set in stone, and alternative times will not be permitted. Additional information about the exams will be provided in advance. Unless evidence of emergency or serious illness is provided, make-up exams will **not** be available.

**Attendance and participation**

Regular attendance and active participation are required. In a somewhat large class such as this, you may only have an opportunity (or inclination) to raise your hand once or twice over the course of the semester. A thoughtful contribution along these lines will, nonetheless, be remembered, and will benefit your participation grade.

**Classroom Courtesy**

Cellphones should be turned off for the duration of the class, and texting during class is not permitted. Also, make it a point to **be on time for class**. Walking into class late, or going to and fro during class, is disruptive both to the instructor and to your fellow classmates. Repeat offenses will lead me to ask you to drop the course.

**Academic Misconduct**

You will be strictly held to the University of Montana Student Conduct Code (www.umt.edu/SA). At a minimum, you will receive an “F” on any work that involves academic misconduct, and you may very well fail the course, depending on the circumstances.

**Grading**

- Quizzes=25% (5% each)
- Exam #1=20%
- Exam #2= 20%
- Exam #3 = 25%
- Attendance/Participation=10%
SCHEDULE

August 27: Welcome
August 29: SRG conference [no class]
August 31: Lindberg, “Science and Its Origins” (ER)
Sept 3: LABOR DAY [no class]
Sept 5: Aristotle [on nature] (in Matthews, pp. 7-12)
  • Quiz #1
Sept 7: Aristotle [on the four causes] (Matthews, pp. 12-15)
Sept 10: Aristotle [on motion] (Matthews, pp. 15-26)
Sept 12: Aristotle [on scientific knowledge] (Matthews, pp. 26-32)
Sept 14: The Copernican Revolution, I. Bernard Cohen (ER)
Sept 17: Galileo (Matthews, pp. 61-71)
Sept 19: Galileo (Matthews, pp. 71-81)
  • Quiz #2
Sept 21: Galileo (Matthews, pp. 81-86)
Sept 24: Descartes (Matthews, pp. 92-97)
Sept 26: Descartes (Matthews, pp. 97-108)
Sept 28: Boyle (Matthews, pp. 111-23)
Oct 1: Additional material/review (Newton?)
Oct 3: EXAM #1
Oct 5: SRG conference [no class]
Oct 8: Kuhn (chs. 1-2)
Oct 10: Kuhn (chs. 3-4)
Oct 12: Kuhn (chs. 5-7)
Oct 15: Kuhn (ch. 8)
Oct 17: Kuhn (ch. 9)
  • Quiz #3
Oct 19  Kuhn (ch. 10)
Oct 22  Kuhn (chs. 11-12)
Oct 24  Kuhn (ch. 13)
Oct 26  Kuhn (selections from ps?)
Oct 29: Lakatos (ER; pp. 107-128)
Oct 31: Lakatos (ER; review)

Nov 2: **EXAM #2**
Nov 5:  van Fraassen (pp. 31-49)
Nov 7:  van Fraassen (reread pp. 31-49)
Nov 9:  SRG conference [no class]
Nov 12:  VETERANS' DAY [no class]
Nov 14:  van Fraassen (pp. 49-74)
Nov 16:  van Fraassen (pp. 74-92)
  •  **Quiz #4**
Nov 19:  van Fraassen (pp. 92-110)
Nov 21:  THANKSGIVING BREAK [no class]
Nov 23:  THANKSGIVING BREAK [no class]
Nov 26:  van Fraassen (pp. 153-174)
Nov 28:  van Fraassen (pp. 174-196)
Nov 30:  Plantinga (“Science and Religion”; online paper)
  •  **Quiz #5**
Dec 3:  Plantinga (“Science and Religion”; online paper)
Dec 5:  Lipton (“Science and Religion: The Immersion Solution”; online paper)
Dec 7:  Last class

**FINAL EXAM: Wed, Dec. 12 (8:00-10:00 a.m.)**