

Scientific Revolutions

TPHI 219, Fall 2013
M W F 11:30–12:25, BA 213

Instructor: P.D. Magnus
Office HU 257
Office hours Tu 12:00–1:00, F 12:30–1:30, and
by appointment
Campus phone 442-4223

Texts: The course readings will come from two books and a bunch of articles. The articles are one electronic reserve, via Blackboard.

- Thomas Kuhn, *The Structure of Scientific Revolutions* (fiftieth anniversary edition)
ISBN: 0226458121
- Steven Shapin, *The Scientific Revolution*
ISBN: 0226750213
- George Sarton, ‘The History of Science and the History of Civilization’
- Robert K. Merton, ‘Science and Democratic Social Structure’
- Carl G Hempel, selections from *Philosophy of Natural Science*
- Karl Popper, ‘Conjectures and Refutations’
- Norwood Russell Hanson, ‘The Irrelevance of History of Science to Philosophy of Science’
- Imre Lakatos, ‘History of science and its rational reconstructions’
- John Worrall, ‘Fresnel, Poisson, and the White Spot’
- Heather Douglas, unpublished manuscript
- Justin Biddle and Eric Winsberg, ‘Value Judgements and the Estimation of Uncertainty in Climate Modeling’
- Philip Kitcher, ‘The Organization of Cognitive Labor’

Requirements: There will be three exams and a paper in this class. For grading:

- 20% Exam #1
- 20% Exam #2
- 25% Final exam
- 5% paper draft
- 30% paper

The paper will be seven to ten pages on an assigned topic. A rough draft will be due at class Nov 11. The paper will be returned to you with comments and the final draft will be due at class Dec 9. You should turn in the rough draft along with the final.

The draft will be marked with the grade it would have received if it were a final draft. If the paper is not improved, however, the final draft will not receive this grade! If you turn in the paper unmodified, you will get one letter grade less than the grade marked on the draft.

Class participation: Participation in class discussion is required. Exemplary participation will add to your grade, up to two-thirds of a letter grade.

Academic honesty: Cheating will not be tolerated. The paper should include citations to any works cited or consulted, as well as acknowledgments of helpful interactions.

Absences: Students who will need to miss exam dates for foreseeable reasons should discuss them with the professor at the beginning of the term. If an emergency results in absence, the student should contact the professor as soon as possible.

Schedule of topics The following is a provisional schedule. Specific readings may take more or less time than indicated, but exam dates and due dates will not change.

M aug 26 Introduction

W aug 28 Science as historical triumph (Read Sarton)

F aug 30 Science as a social structure (Read Merton)

M sep 2 *Labor Day, no class*

W sep 4 ...

F sep 6 *Rosh Hashanah, no class*

M sep 9 Hypothetico-deductive method (Read Hempel)

W sep 11 *no class*

F sep 13 ...

M sep 16 Science as falsification (Read Popper)

W sep 18 ...

F sep 20 Logic and history (Read Hanson)

M sep 23 discussion and review

W sep 25 Exam #1

F sep 27 The Kuhnian turn (read *Structure*)

M sep 30 ...
W oct 2 ...
F oct 4 ...
M oct 7 ...
W oct 9 ...
F oct 11 ...
M oct 14 *Columbus Day, no class*
W oct 16 ...
F oct 18 ...
M oct 21 Popper's revenge (Read Lakatos)
W oct 23 ...
F oct 25 Novel predictions (Read Worrall)
M oct 28 discussion and review
W oct 30 Exam #2
F nov 1 Social Structure and trust (Read Shapin)
M nov 4 ...
W nov 6 ...
F nov 8 ...
M nov 11 ...
 paper draft due
W nov 13 ...
F nov 15 ...
M nov 18 Pure vs. applied science (Read Douglas)
W nov 20 ...
F nov 22 Values and science (Read Biddle&Winsberg)
M nov 25 ...
W,F nov 27,29 *Thanksgiving, no class*
M dec 2 ...
W dec 4 Scientific incentives (Read Kitcher)
F dec 6 ...
M dec 9 concluding thoughts
 final paper due
Th dec 19 Final exam, 10:30–12:30