

**Professor:** P.D. Magnus

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Office hours: Tu 11:00–noon, Fr 1:00–2:00, and by appointment

**Texts:** The course readings will come from a book and a bunch of articles. The articles are available via Brightspace.

- Thomas Kuhn, *The Structure of Scientific Revolutions* (fiftieth anniversary edition)  
ISBN: 0226458121
- Robert K. Merton, ‘Science and Democratic Social Structure’
- George Sarton, ‘The History of Science and the History of Civilization’
- Carl G Hempel, selections from *Philosophy of Natural Science*
- Karl Popper, ‘Science: Conjectures and Refutations’
- Harry Collins, ‘The TEA Set’
- Stephen Shapin, ‘Changing Tastes’
- Lorraine Daston, ‘Objectivity and the Escape from Perspective’
- Peter Galison, ‘Trading Zone’
- Kathleen Okruhlik, ‘Gender and the Biological Sciences’
- Justin Biddle and Eric Winsberg, ‘Value Judgements and the Estimation of Uncertainty in Climate Modeling’

**Electronics policy:** Laptops? Tablets? Cell phones? The class will decide on a policy on day one.

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

20% Exam #1      20% Exam #2      20% Final exam      10% paper draft      30% paper

**Class participation:** Participation in class discussion is expected, but I realize that everyone has off days. Exemplary participation will add to your grade, up to two-thirds of a letter grade.

**Academic honesty:** You are encouraged to discuss issues from the course with each other and with others outside of class, but you are responsible for your own ideas and your own words. Students who turn in work that is not theirs or who use outside resources during exams will be failed for that item on the first infraction and failed for the course on the second infraction.

Note that turning in text which you have harvested from an AI counts as plagiarism. Don’t make the mistake of thinking that an AI can write better than you can. It can put together pretty sentences sometimes, but the fundamental point of writing in this course is to collect and convey your thoughts.

**The paper:** The paper will be seven pages on an assigned topic. A rough draft will be due November 8. The paper will be returned to you with comments and the final draft will be due on the last day of class (December 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.

**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.

**Week 1** aug 28, 30

Introduction

Science as social structure (read Merton)

**Week 2** sep 4, 6

Science as historical triumph (read Sarton)

Science as hypothetico-deduction (read Hempel)

**Week 3** sep 11, 13

— continued —

Science as falsification (read Popper)

**Week 4** sep 18, 20

— continued —

review

**Week 5** sep 25, 27

sep 25: EXAM #1

The Kuhnian turn (start reading Kuhn)

**Week 6** oct 2, 4

— continued —

**Week 7** oct 9, 11

— continued —

**Week 8** oct 16, 18

— continued —

**Week 9** oct 23, 25

review

oct 25: EXAM #2

**Week 10** oct 30, nov 1

Social networks and connections (read Collins)

Science and perception (read Shapin)

**Week 11** nov 6, 8

Science and objectivity (read Daston)

nov 8: paper draft due

**Week 12** nov 13, 15

Science and material culture (read Galison)

Science and gender (read Okruhlik)

**Week 13** nov 20, 22

Climate science (read Biddle&Winsberg)

— continued —

**No class!** nov 27, 29 - thanksgiving

**Week 14** dec 4,6

review/conclusion

dec 6: final paper due

**Final Exam** Tu dec 17 1:00–3:00 PM

## General education

This course satisfies the *Humanities* and *Challenges for the 21st Century* General Education requirements. Like all Gen Ed courses, this course. . .

- Offers explicit understandings of the procedures and practices of disciplines and interdisciplinary fields.
- Provides multiple perspectives on the subject matter, reflecting the intellectual and cultural diversity within and beyond the university.
- Emphasizes active learning in an engaged environment that enables students to be producers as well as consumers of knowledge.
- Promotes critical inquiry about the assumptions, goals, and methods of various fields of academic study and the interpretive, analytic, and evaluative competencies central to intellectual.

As a *Humanities* course, this course provides. . .

- An understanding of the continuing relevance of the objects of study to the present and to the world outside the university.
- An ability to employ the terms and understand the conventions particular to the disciplines (Philosophy of Science and Science Studies).
- An ability to analyze and assess the strengths and weaknesses of ideas and positions along with the reasons or arguments that can be given for and against them.
- An understanding of the nature of the texts, artifacts, ideas, or discourse of the discipline and of the assumptions that underlie this understanding, including those relating to issues of tradition and canon.

As a *Challenges for the 21st Century* course, this course provides. . .

- Knowledge and understanding of the historical roots, contemporary manifestations, and potential future courses of important challenges students may encounter as they move into the world beyond the university;
- Familiarity with these challenges in areas such as cultural diversity and pluralism, science and technology, social interaction, ethics, global citizenship, and/or others;
- An integrated understanding of how challenges often affect individuals and societies simultaneously in many of these areas;
- An appreciation for interdisciplinary approaches to understanding contemporary and future challenges.