

Understanding Science

Philosophy 218, Fall 2022

MWF 10:35–11:30

HU 124

Professor: P.D. Magnus

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Office hours: Tu 1:00–2:00, Fr 1:00–2:00, (via Zoom) and by appointment

Teaching assistant: Kei Yan Leung

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Texts: All course readings are available on Blackboard.

I strongly encourage you to read actively and to mark up the readings.

This course is an introduction to some issues in the philosophy of science, including the nature of scientific inference and knowledge. We will also consider the relationship between science and society. Some questions we'll consider include:

- What kind of activity is science?
- What sort of social organization makes for the most productive science?
- Should science set its own agenda, or should it be guided by our social aspirations?

Requirements and grading:

15% reading response papers

10% short papers

25% first midterm exam

25% second midterm exam

25% final exam

Class attendance and participation: You should come to class and participate in discussion, but the class is large enough that I won't check for this every day. Instead, participation in class activities and discussion will add to your grade, up to two-thirds of a letter grade. For example, a B could become an A–.

Reading response papers: You will be responsible for writing five reading response papers during the term. Each should be about one typed page (250–400 words).

These may be written for any five readings, but must be turned in *before* we have discussed the readings in class. The dates in Blackboard are my best guess for that, but I will change the on-line dates as needed.

- A reading response should provide a critical summary. You should try to state the **central thesis** of the reading and explain briefly what the author is trying to do.
- Ask yourself: What **reasons** does the author give for believing their thesis? Why do they think it matters?
- A reading response paper should *not* mention everything from the reading, but should instead identify the key issue.

Short papers: You will be responsible for writing two short papers (about 3 pages or 750–1200 words) on assigned topics. They will be due Sep 26 and Oct 31.

Exams: There will be three exams. The final exam will be cumulative.

Exams will either be in-class or on-line, circumstances permitting.

Academic honesty: Cheating will not be tolerated.

Absences: If you will need to miss exam or due dates for foreseeable reasons, you should discuss them with the professor at the beginning of the term. If you are sick— or might be— then you should not come to class. You are welcome to follow up in office hours about material you missed.

Schedule of topics

This is a provisional and approximate schedule. I have indicated which readings we will discuss in each week, but even this might be nudged one way or another. I will always announce in class what we will be doing at the next meeting. In any case, exam dates will not change.

Week 1 Aug 22, 24, 26

Introduction

How should you decide what to believe? [read Peirce]

Week 2 Aug 29, 31, Sep 2

Kinds of inference [read notes on inference]

Week 3 Sep 7, 9

NO CLASS Monday Sep 5

Demarcation [read Laudan]

Week 4 Sep 12, 14, 16

Norms of science [read Merton]

Observation and experiment [read Pinch, on externality]

Week 5 Sep 19, 21, 23

Externality, continued

FIRST EXAM Friday Sep 23

Week 6 Sep 26, 28, 30

SHORT PAPER #1 due Monday Sep 26

The analogy between theories and maps [no reading]

Scientific expertise [read Collins+Pinch, on AIDS]

Week 7 Oct 3, 5, 7

Scientific significance [read Kitcher]

Week 8 Oct 12, 14

NO CLASS Monday Oct 10

Science and values [read Douglas ch 5]

Week 9 Oct 17, 19, 21

Values and objectivity [read Douglas ch 6]

Values and policy [read Douglas ch 7]

Week 10 Oct 24, 26, 28

Values and science, continued

SECOND EXAM Friday Oct 28

Week 11 Oct 31, Nov 2, 4

SHORT PAPER #2 DUE Oct 31

Case study: genetics and IQ [read Gould]

Week 12 Nov 7, 9

Creating Doubt [read Fernández Pinto]

NO CLASS Friday Nov 11

Week 13 Nov 14, 16, 18

Women in science [read on women in science]

The invisibility of women in science [read Oreskes, on heroism]

Week 14 Nov 21

Case study: Climate change [read Intemann]

NO CLASS Wednesday or Friday

Week 15 Nov 28, 30, 2

Climate change, continued [read Oreskes, on climate change]

Week 16 Dec 5

Conclusion

FINAL EXAM Friday Dec 9 10:30-12:30