

Understanding Science

Philosophy 218, Spring 2022

WeFr 11:40–1:00

SL 206

Professor: P.D. Magnus

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Office hours: Tu 1:30–2:30 (online), Fr 1:30–2:30 (face-to-face), and by appointment

Teaching assistant: Nick Boles

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Office: HU-255

Office hours: W 9:30-11:30

Texts: All course readings are available on Blackboard.

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

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.

- 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 March 2 and April 13.

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 and due dates will not change.

Week 1 jan 26, 28

Introduction

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

Week 2 feb 2, 4

Peirce continued

Kinds of inference [read notes on inference]

Week 3 feb 9, 11

Inference, continued

Demarcation [read Laudan]

Week 4 feb 16, 18

Demarcation, continued

Norms of science [read Merton]

Week 5 feb 23, 25

Scientific expertise [read Collins+Pinch, on AIDS]

FIRST EXAM feb 25

Week 6 mar 2, 4

SHORT PAPER #1 due mar 2

The analogy between theories and maps [no reading]

Observation and experiment [read Pinch, on externality]

Week 7 mar 9, 11

Externality, continued

Scientific significance [read Kitcher]

Spring break!

Week 8 mar 23, 25

Kitcher, continued

Science and values [read Douglas ch 5]

Week 9 mar 30, apr 1

Values and policy [read Douglas ch 7]

SECOND EXAM apr 1

Week 10 apr 6, 8

The value of free enquiry [read Mill]

Week 11 apr 13, 15

SHORT PAPER #2 DUE apr 13

Case study: genetics and IQ [read Gould]

Week 12 apr 20, 22

Women in science [read on women in science]

The invisibility of women in science [read Oreskes]

Week 13 apr 27, 29

Conclusion

FINAL EXAM Tu may 10 10:30am–12:30pm