# Philosophy of Science

**SECTION**

PHIL 460A,
Autumn 2023

**INSTRUCTOR**

Jer Steeger
(they/them)

**EMAIL**

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**OFFICE LOCATION**

M396 Savery Hall

**OFFICE HOURS**

MW, 3-4 pm

**DESCRIPTION**

Scientific theories are powerful! They make stunningly accurate predictions and offer satisfying explanations of phenomena around us. But what makes these theories so successful? How much do they really tell us about the world? And just what makes an explanation "scientific," anyhow? We will review historical and contemporary approaches to answering these questions, covering topics such as the reality of unobservable entities, how we choose between competing theories, how old theories reduce to new ones (if they do at all), and the nature of scientific explanation. This course is self-contained; no previous scientific or mathematical training is required.

**GOALS**

- **Know** some traditional answers to persistent questions in the philosophy of science.
- **Do** case studies about how one scientific theory gets rejected in favor of another and what makes different sorts of scientific explanations compelling.
- **Feel** the anxiety of philosophers of science past and present and the satisfaction of solving scientific puzzles with philosophical tools.

**COURSE AT A GLANCE**

All readings will be provided as PDFs on Canvas.

| DATES | TOPIC | CORE READINGS | MILESTONE |
|---|---|---|---|
| 9/28 | Shut up and calculate? | Roberts | |
| 10/3, 10/5, 10/10 | Logical empiricism | Carnap, Bright | |
| 10/12, 10/17 | Theory change | Kuhn, Beller, Lakatos, Feyerabend | |
| 10/19, 10/24, 10/26, 10/31 | Realism | Duhem, Laudan, van Fraassen, Fine, Ruetsche | Case study 1 |
| 11/2, 11/7 | Reduction | Nickels, Cartwright | |
| 11/9, 11/13, 11/16, 11/21 | Explanation | Hempel, Woodward, Kitcher, Hesse | Case study 2 |
| 11/28 | Representation | van Fraassen | Peer review |
| 11/30, 12/4, 12/7 | Values | Longino, Douglas | Extended abstract |
| 12/15 | | | Final paper |

## ASSIGNMENT SCHEDULE

| ASSIGNMENT | DUE DATE | POINTS | % OF TOTAL |
|---|---|---|---|
| Reading reflections | 9 am the day of class discussion | 5 each, 100 total | 40% |
| Case study 1 | Midnight, Friday, 10/20 | 20 | 8% |
| Case study 2 | Midnight, Friday, 11/17 | 20 | 8% |
| Peer review | Midnight, Monday, 11/27 | 10 | 4% |
| Extended abstract | Midnight, Monday, 12/4 | 40 | 16% |
| Peer review | Thursday before class, 12/7 | 10 | 4% |
| Final paper | Midnight, Friday, 12/15 | 50 | 20% |

## PROMPT FOR THE BIG PAPER

1. Describe a scientific explanation that you like. (It can be one that we cover, but it doesn't have to be!)
2. What unobservable forces, bodies, or entities does it use?
3. Do you believe these unobservables exist? Does (or should) your stance make a difference to whether the explanation is compelling?
4. Does (or should) your stance make a difference to whether the explanation is authoritative?

Detailed directions and rubrics for this assignment (and all others) are on Canvas.

## AI POLICY

Some recommended uses of ChatGPT:

- Use it as a conversation partner in a Socratic dialogue.
- Feed it a portion of your draft to help generate ideas on where to go next.
- Get a rough translation of a source written in a different language.

Some not-recommended uses of ChatGPT:

- Use it to do your reading reflections for you. (That won't help you prepare for discussions and activities.)
- Use it to write your paper for you. (I can't stop you, but it will be boring and awkward when you share your work with other folks in the course.)

## EXPECTATIONS AND ACCOMMODATIONS

I encourage you to read through the **UW Department of Philosophy's syllabus supplement** at **https://tinyurl.com/3949zyby**. It has detailed information on the department's policies on academic misconduct.

If you experience or witness sexual harassment or discrimination, I highly recommend contacting **SafeCampus** by visiting **https://www.washington.edu/safecampus/** or by calling their hotline at **206-685-7233**.

If you need disability accommodation, please let me know as soon as possible; I also highly recommend contacting **Disability Resources for Students (DRS)** at **http://depts.washington.edu/uwdrs/**.