

# Philosophy of Science

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**Office:** 220 Miner Hall

**Office Hours:** Tues 1:30-3:30pm

**Semester:** Fall 2025

**Time:** Tues/Thurs 9:00-10:15am

**Classroom:** 225 Miner Hall

**Course Website:** Canvas

*This syllabus was last updated July 29, 2025*

## Course Description

In this course, we explore foundational questions and debates in the philosophy of science, with the broad goal of gaining insight into what science is, how it works, and what role it plays in our society. This will include classic topics such as demarcation (what is science vs. pseudoscience?) realism vs. antirealism (what can science tell us about what is out there?) and challenges to scientific objectivity. By the end of this course, students will be well-versed in some key debates within the philosophy of science and equipped to articulate and defend their own positions on these issues.

## 1 Learning Outcomes

By the end of this course:

- You will be able to identify key positions in classic debates in the philosophy of science, and to analyse the arguments in favor of these positions.
- You will be able to defend your own views about recent topics in the philosophy of science by articulating arguments in favour of your view and defending it from objections.
- You will be able to articulate aspects of the social context of science, and the ways in which science is a social practice.

## 2 Text(s)

There are **no required textbooks**. However, you may find it useful to have access to a copy of the following:

- Peter Godfrey-Smith. *Theory and Reality : an Introduction to the Philosophy of Science*. University of Chicago Press, Chicago, 2003

All required course readings will be uploaded to Canvas or will be freely available online. In some cases, you may need to use your Tufts credentials to access something through the Tufts library. Please feel free to ask me if you need help accessing any of the readings.

See also section 7 for further helpful resources.

### 3 Course Requirements

All written assignments should be submitted via Canvas (except one-minute papers).

#### 3.1 Summary of Assignments:

Assignment:		Percentage:	
Meaningful participation:		15%	
Short Response Papers:		30%	
Final Project:	Annotated bibliography:	10%	55%
	First draft:	20%	
	Peer feedback:	10%	
	Paper + incorporated feedback:	15%	

#### 3.2 Meaningful Participation (15%):

Philosophy is a group activity. With this in mind, students are expected to carefully study all required readings for each week and come prepared to discuss them, raise questions about them, and draw attention to their strengths and weaknesses.

In addition, students will complete pre-class **reading journals**, and end-of-class **one-minute papers**. These are required, but will not themselves be graded.

- **Reading Journals:**

- A short piece of writing (~1 paragraph) where you reflect on that day’s reading.
- Submit **by 5pm the day before** each class (for which there is a reading).
- Each reading journal should answer the following questions:
  1. What (in your view) is the main claim being made by the author(s).
  2. What is the most important question you have about the topic after reading this text. (This might be about something you found confusing or unclear, or it might constitute an objection to the author’s arguments.)

- **One-minute papers:** At the end of each class, we will devote a few minutes to writing ‘one-minute papers’ in response to a prompt provided in class.

**Attendance:** You should attend every class but extenuating circumstances arise that can make this difficult. If you cannot attend a class or will be more than 15 minutes late, please let me know.

If you miss more than 2 classes or reading journals, please contact me so that we can come up with a plan for you to catch up on what you missed.

***How to get a good ‘meaningful participation’ grade:***

- Show up to class having read and thought carefully about the reading.
- Demonstrate engagement with the reading by regularly asking questions or offering ideas in class discussions (including discussions with a partner or in small groups)

- Write thoughtful reading journals and one-minute papers reflecting deep engagement with class readings (even those that you found difficult or confusing)

### 3.3 Short Response Papers (30% total)

For these assignments, you will be asked to annotate an article to identify key assumptions, arguments, and evidence being presented in favour of the conclusion. You will write a short paper (approx. 1000 words) responding to the article, following a prompt provided by the instructor. More detailed information will be provided closer to the due dates.

- **1st response paper:** Monday, 29 September by 5:00pm
- **2nd response paper:** Monday, 20 October by 5:00pm

### 3.4 Final Project (55% total)

You will write a final paper (approx. 2000 words) related to one of the topics covered in this class. In it, you will articulate a position on that topic, and provide your own argument for that position. You will then articulate objections to your argument, and respond to those objections.

The paper will be produced in stages, with each stage contributing to your overall grade for the assignment. Part of your grade will also be based on the quality of the feedback you provide during two peer review stages.

- **Annotated bibliography with draft abstract (10%)**
  - due Monday 3 November by 5:00pm
- **First draft (20%)**
  - due Monday 24 November by 5:00pm
- **Peer feedback on drafts (10%)**
  - written report due Friday 5 December by 5:00pm
- **Paper + incorporated Feedback (15%)**
  - due Friday 12 December by 5:00pm

### 3.5 Letter Grade Conversion

$\geq 93.00$	A	73.00 - 76.99	C
90.00 - 92.99	A-	70.00 - 72.99	C-
87.00 - 89.99	B+	67.00 - 69.99	D+
83.00 - 86.99	B	63.00 - 66.99	D
80.00 - 82.99	B-	60.00 - 62.99	D-
77.00 - 79.99	C+	$\leq 59.99$	F

## 4 Course Outline

All readings listed here are subject to change. The current version of this document will always be available on Canvas.

### 4.1 Topic Overview

<b>History of Philosophy of Science</b>	Week 1	Intro to Phil of Science
	Week 2	Logic + Empiricism
	Week 3	Induction & Falsification
	Week 4	Theory Change & Paradigms
<b>Challenges to Scientific Objectivity</b>	Week 5	Sociology of Science
	Week 6	Feminism & Social Values
	Week 7	Scientific Realism I
	Week 8	Scientific Realism II
<b>Models &amp; Measurement</b>	Week 9	Laws & Representation
	Week 10	Models
	Week 11	Data & Measurement I
	Week 12	Data & Measurement II
<b>Wrapping Up</b>	Week 13	Catch-up & Wrap-up
	Week 14	Final Paper

## 4.2 Detailed Schedule

All readings will be made available on Canvas. Please take note of key dates, including assignment deadlines.

Date	Reading	Deadlines
2 September	Syllabus	
4 September	<b>JE at conference (no class)</b>	
9 September	Godfrey-Smith Ch2	
11 September	Hempel	
16 September	Godfrey-Smith Ch3	
18 September	Godfrey-Smith Ch4 + Popper excerpts	
23 September	Godfrey-Smith Ch5 + Kuhn excerpts	
25 September	Godfrey-Smith Ch6 + Kuhn excerpts	
30 September	Godfrey-Smith Ch8	Mon. 29th: First response paper
2 October	Collins & Franklin	
7 October	Godfrey-Smith Ch9 + Haraway (excerpts)	
9 October	Longino + Prescod-Weinstein (excerpts)	
14 October	Psillos	
16 October	Laudan	
21 October	van Fraassen	Mon. 20th Second response paper
23 October	<b>TBD (Staar Center Workshop)</b>	
28 October	Cartwright	
30 October	Bogen & Woodward	
4 November	Nguyen & Frigg section 1	Mon. 3rd: Annotated bibliography
6 November	Nguyen & Frigg section 2	
11 November	<b>Veteran's Day (no class)</b>	
13 November	Boyd	
18 November	Tal	
20 November	Bokulich	
25 November	TBD	Mon. 24th: Final paper draft
27 November	<b>Thanksgiving (no class)</b>	
2 December	Peer Paper	
4 December	-	Fri. 5th.: Peer review report
Exam Period		Fri. 12th: Final paper revisions

## 5 Course Policies

### 5.1 Late or Incomplete Work

We all live busy lives outside of the classroom and we each face our own unique challenges. I understand that these challenges will sometimes make it difficult to complete class assignments or to show up for class ready to make our best contributions.

Please let me know as soon as possible (and ideally before the deadline) if you know that you will struggle to meet a deadline. When you do, we can determine a reasonable timeline for you to complete the assignment or, under some circumstances, an alternative way for

you to demonstrate your learning

All students are entitled to three no-questions-asked 24-hour extensions, which can be used for any major assignment (short response papers, annotated bibliography, final paper, peer review report). You still need to let me know if you want to use one of these extensions! Further extensions are at the instructor's discretion, but I promise to be as flexible as possible in offering reasonable extensions.

Late work without such an extension will be penalized by 1/3 of a letter grade per day (so, e.g., an A- handed in one day late would become a B+).

## 6 Other Policies and Resources

### 6.1 Tufts Academic Resources

The StAAR Center offers a variety of FREE resources, available to *all students*. Students may make an appointment to work on any writing-related project or assignment, attend subject tutoring in a variety of disciplines, or meet with an academic coach to hone fundamental academic skills like time management or overcoming procrastination. Students can make an appointment for any of these services by visiting [go.tufts.edu/TutorFinder](https://go.tufts.edu/TutorFinder), or by visiting their website: <https://students.tufts.edu/staar-center>

### 6.2 Accommodations

Tufts is committed to providing equal access and support to all qualified students through the provision of reasonable accommodations. If you have a disability that requires reasonable accommodations, you are encouraged to contact the StAAR Center at:

- [StaarCenter@tufts.edu](mailto:StaarCenter@tufts.edu) or
- 617-627-4539.

Please be aware that accommodations cannot be enacted retroactively, making timeliness a critical aspect for their provision.

In addition, students with or without a formally documented disability are warmly encouraged to contact me about accommodations. I am committed to collaborating with students to ensure that my course does not present unreasonable or inequitable barriers to their success.

### 6.3 Religious Accommodations

Tufts University faculty, staff, and administration highly value and acknowledge the religious diversity of its student body. Students seeking religious accommodations related to their holy days are encouraged to collaborate with faculty to make arrangements during the first week of each semester. The religious holy days calendar, including the holy days policy from the Faculty Handbook, is available [here](#) for your reference. Students seeking additional support may refer to the University Religious Accommodations Policy, available [here](#). The University Chaplaincy is also available to respond to questions on religious observances; their contact information is available [here](#).

## 6.4 Academic Integrity

All members of the Tufts community are responsible for integrity in their own behavior and for contributing to an overall environment of integrity at the university. You can find resources relating to academic integrity in the Tufts Academic Integrity handbook ([click here](#)). It is your responsibility to familiarize yourself with the requirements of ethical behavior and academic work as described in Tufts' Academic Integrity handbook.

If you ever have a question about the expectations concerning a particular assignment or project in this course, please ask me for clarification.

The Faculty of the School of Arts and Sciences and the School of Engineering are required to report suspected cases of academic integrity violations to the Dean of Student Affairs Office. If I suspect that you have cheated or plagiarized in this class, I must report the situation to the dean.

## 6.5 Guidelines for the use of AI

In this course, you may use AI tools for your learning, just as you can collaborate with your peers for things such as brainstorming, getting feedback, revising, or editing of your own work. However, you may not submit any work generated by an AI program as your own. This is a violation of Tufts Academic Integrity policies.

To help guide you in the use of AI in this course – consider the following guidelines:

- Familiarize yourself with AI tools, including that: Bias is embedded in the creation of these systems and in their output and you may encounter harmful language and ideas. AI platforms can produce inaccurate or false information with confidence (so called hallucinations, e.g, it frequently invent false references). Text from AI may closely mimic human knowledge, understanding and even human emotions. Many of these tools retain the rights to use your information and the content shared with them in a variety of ways.
- Cite all AI tools when used or referred to in assigned work. See [How to Cite ChatGPT](#) from the APA & [How to Cite Generative AI](#) from the MLA. Identify the way it contributed to your work. For example, you can include a statement that you asked an AI to “identify any grammatical or spelling errors” in your writing, or you used it to get started in thinking about topics for your paper. Any statement directly generated by an AI system should be in quotes.
- If you have questions please ask via email, in office hours or during class.

## 6.6 Student Support, Including Mental Health

As a student, there may be times when personal stressors or difficulties interfere with your academic performance or well-being. The **Dean of Student Affairs Office** offers support and care to undergraduates and graduate students who are experiencing difficulties, and can also aid faculty in their work with students. In addition, through Tufts' **Counseling and Mental Health Service (CMHS)** students can access mental health support 24/7, and they can provide information on additional resources. CMHS also provides confidential consultation, brief counseling, and urgent care at no cost for all Tufts undergraduates as well as for graduate students who have paid the student health fee. To make an appointment,

call 617-627-3360. Please visit the CMHS website: <http://go.tufts.edu/Counseling> to learn more about their services and resources.

## **7 Other Resources**

### **7.1 The Stanford Encyclopedia of Philosophy**

Find it online here: <https://plato.stanford.edu/>

The SEP is a good place to start when learning about a new philosophical topic. The SEP entries are written by experts in that area and generally provide a good overview of the issues.

A good next step is often to follow up by reading the sources that the SEP entry sites on a particular issue.

### **7.2 Writing Philosophy Papers**

- Jim Pryor's guide to philosophical writing:  
<http://www.jimpryor.net/teaching/guidelines/writing.html>
- Harvard guide to writing philosophy papers:  
[https://philosophy.fas.harvard.edu/files/phildept/files/brief\\_guide\\_to\\_writing\\_philosophy\\_paper.pdf](https://philosophy.fas.harvard.edu/files/phildept/files/brief_guide_to_writing_philosophy_paper.pdf)