PHILOSOPHY OF SCIENCE I

FALL 2024

Class meetings
Available on TimeEdit

Instructor
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Course description
Science is considered the best tool we have to learn about the way the world around us works. Philosophy of science investigates what scientific claims tell us about the way the world is, as well as how scientists acquire that knowledge and why that knowledge is justified. This course introduces philosophy of science by focusing on seven central topics in contemporary philosophers of science. Each topic will be tied to historical developments in 20th century philosophy of science.

Course goals
At the end of this course, students will have developed the following skills:

- History and philosophy of science
  - Give a brief overview of the history of 20th century philosophy of science
  - Identify and explain different views in central debates in philosophy of science
  - Explain key concepts from philosophy of science
- Philosophical skills
  - Active reading of philosophical texts
  - Argument reconstruction
  - Raising objections to a given philosophical argument
  - Write a brief argumentative essay on a topic in philosophy of science

Requirements
Attendance and participation
Students are required to attend at least half of the class meetings to pass the course.

Two short essays
Students will complete two essays for this course; one in the middle of the course, one towards the end of the course. I will distribute prompts for both essays well in advance, together with the grading criteria. The first essay will primarily focus on argument reconstruction, while the second will require original argumentation in context of a debate in philosophy of science by drawing on the literature discussed in class.

Readings
Rosenberg, Alex, and Lee McIntyre (2020) *Philosophy of Science: A Contemporary Introduction* (Fourth Edition) New York: London. Pp. 294.

Supplementary papers according to the schedule below. All readings other than the textbook will be made available online

Tentative course schedule (subject to revision)

Week	Date	Topic	Readings
36	6/9	Introduction A brief history of philosophy of science	Rosenberg & McIntyre– Chapter 1
38	16/9	Explanation	Rosenberg & McIntyre – Chapter 3 Lloyd & Anderson – "Empiricism, Objectivity, and Explanation." *(Focus on section 1)* **NB: Class meeting on Monday instead of Friday!**
38	20/9	Laws of Nature	Rosenberg & McIntyre – Chapter 4 Cartwright – "The Truth Doesn't Explain Much" *Optional: Cartwright – "Do the Laws of Physics State the Facts?"* **[Essay Question 1 Distributed]**
39	27/9	Causation; Laws of Nature in the Life Sciences	Rosenberg & McIntyre – Chapter 5 Mitchell – "Dimensions of Scientific Law"
40	04/10	Interpreting Scientific Theories: The Realism Debate	Rosenberg & McIntyre – Chapter 8 Wylie – "Arguments for Scientific Realism: Ascending Spiral" *Optional: Rosenberg & McIntyre – Chapter 7* **[Essay 1 Due]**
41	11/10	Confirming Scientific Theories: Induction and Evidence	Rosenberg & McIntyre – Chapter 10: "The Problem of Induction" Rosenberg & McIntyre – Chapter 11 *Optional: Boyd – "Evidence enriched"*
42	18/10	Science as a Social Endeavour; Feminist Philosophy of Science	Rosenberg & McIntyre – Chapter 12 Okruhlik – "Gender and the Biological Sciences" *Optional: Rosenberg & McIntyre – Chapter 14: "Scientism, Sexism, and Significant Truths"* **[Essay Question 2 Distributed]**
43	25/10	Values and Science	Douglas – "Inductive Risk and Values in Science" Longino – "Values and Objectivity" *Optional: Dang & Bright – "Scientific Conclusions Need Not be Accurate, Justified, or Believed by their Authors"*
44	01/11	N/A	**[Essay 2 Due]**

Bibliography

Week 38:

- Lloyd, Elisabeth A., and Carl G. Anderson (1993). Empiricism, Objectivity, and Explanation. *Midwest Studies in Philosophy* 18: 121-131.

Week 38:

- Cartwright, Nancy (1983). The Truth Doesn't Explain Much. In: *How the Laws of Physics Lie*. Oxford: Clarendon Press. Pp. 44-53

- Cartwright, Nancy (1983). Do the Laws of Physics State the Facts? In: *How the Laws of Physics Lie*. Oxford: Clarendon Press. Pp. 54-73

Week 39:

- Mitchell, Sandra (2000). Dimensions of Scientific Law. *Philosophy of Science, 67*(2), 242.

Week 40:

- Wylie, Alison (1986). Arguments for Scientific Realism: The Ascending Spiral. *American Philosophical Quarterly*, 23(3), 287.

Week 41:

- Boyd, Nora Mills (2018). Evidence Enriched. *Philosophy of Science*. 85(3): 403-421.

Week 42:

- Okruhlik, Kathleen. "Gender and the Biological Sciences." *Canadian Journal of Philosophy* 24, no. sup1: 21–42

Week 43:

- Longino, Helen E. (1990). Values and Objectivity. In: *Science as social knowledge: values and objectivity in scientific inquiry*. Princeton, N.J.: Princeton Univ. Press. Pp. 62-82
- Douglas, Heather (2000). Inductive Risk and Values in Science. *Philosophy of Science*. 67(4):559-579
- Dang, Haixin, and Liam Kofi Bright (2021). Scientific conclusions need not be accurate, justified, or believed by their authors. *Synthese*: 1-17.