

Sample Syllabus

Introduction to Philosophy of Science

Overview

What is science? Are scientific theories different from opinions? Is there a theory that explains everything? Are we getting closer to finding it? Does the scientific method guarantee objective results? Are scientists just pawns in a corporate power structure? Do developed nations know more about the world than developing or ancient societies? Are there particular sorts of people who are better at science than others?

In this introductory course, we will consider fundamental questions about the nature of science, scientific knowledge, and scientific practice. This course should be of interest both to science majors wishing to reflect on broader issues in their fields, and non-science majors interested in the role of science in society.

Texts

Philosophy of Science: A New Introduction by Gillian Barker and Philip Kitcher (BK)

In addition to this textbook, there will be a number of readings for download.

Assessment

50% Reading Responses
10% First Essay
20% Second Essay
20% Media Presentation

Reading Responses: Each week a question about the following week's readings will be posed. 300 - 400 word replies to the week's question are to be handed in at the beginning of class. Students may choose to write any 10 of these replies.

Essays: Two 5-7 page essays will be due near the middle and end of the semester. The questions will be such that the first essay can be used as a preliminary draft for the second, although the second should reflect on what you've learned in the entire course.

Media Presentation: In small groups, select a scientific issue of contemporary public interest, and find 4-6 recent news articles (or podcasts, TV clips, songs, etc.) about the topic intended for the general public. Also research the scientific background of the topic in specialist journals and textbooks. Produce a presentation in the medium of your choice (blog post, podcast, video, news article, poster, etc.) that presents your issue in a way that both appeals to the public interest, and gets the details of the science right.

Schedule of Readings

1. Science and Philosophy

BK Chapter 1

Stemwedel, *What is philosophy of science (and should scientists care)?*

2 & 3. Confirmation and Explanation

BK Chapter 2

Popper, *Conjectures and Refutations*, Chapter 1

4 & 5. Unity and Causation

BK Chapter 3

Salmon, *Four Decades of Scientific Explanation*, Chapter 2

Mitchell, *Why Integrative Pluralism?*

6 & 7. Revolution and Progress

BK Chapter 4

Lakatos, *Science and Pseudoscience*

Hacking, *Representing and Intervening*, Chapter 1

8 & 9. Objectivity and Diversity

BK Chapter 5

Daston & Galison, *The Image of Objectivity*

Longino, *The Fate of Knowledge*, Chapter 4

10 & 11. Values and Policy

BK Chapter 6

de Melo-Martín & Intemann, *Feminist resources for biomedical research: lessons from the HPV vaccines*

Tuana, *Leading with ethics, aiming for policy: new opportunities for philosophy of science*

12. Media Presentations