

Philosophy 226, The Philosophy of Science
Tues, Thurs 3:10pm-4:25pm
Rockefeller Hall 210
Fall 2007 Syllabus and Reading Schedule

Barry Lam

balam@vassar.edu

Office: Rockefeller Hall 401A

OH: Tues. 4:30-5:30pm, Thurs. 1:30pm-3:00pm

and by appointment

Office Phone: 437-5528

This course will focus on the rationality of the scientific enterprise, and the metaphysical and epistemological commitments involved in accepting a scientific theory. Over the course of the semester, we will look primarily at three competing views about the history, nature, and epistemological merits of scientific theories. One family of views insists that science primarily aims at discovering truths about the general and unobservable parts of the external world, and that the predictive and technological success of science demonstrates it to be a rational, successful, truth-seeking enterprise. Another family of views insist that science primary aims at merely predicting and explaining our sense-experiences, and that successful scientific theories tell us nothing about the general or unobservable truths of the world. Finally, a third family of views insist that science has elusive and idiosyncratic aims, that there is no objective measure of success that can tell us that science is successful, and that therefore, scientific theories should be understood as mere historical artifacts of human invention. In assessing the merits of one family of views over another, we will look closely at philosophical issues concerning the existence of unobservable entities, what constitutes a scientific explanation, whether sense-experiences are “theory-laden,” and whether there can be indefinitely many competing explanations for an observed event.

Texts: *The Structure of Scientific Revolutions*, by Thomas Kuhn, University of Chicago (1962).

The Scientific Image, by Bas C. van Fraassen, Oxford University Press (1981).

Scientific Realism: How Science Tracks Truth, by Stathis Psillos, Routledge (1999).

Readings in the Philosophy of Science, ed. Balashov and Rosenberg, Routledge (1999).
Additional Articles on Blackboard

Requirements: There will be two papers, about 2000 words each, and a take-home, written final exam. Study questions will be handed out in advance of the final exam. Students interested in the philosophy of science may write a term paper in lieu of the final exam, though topics must be discussed with the instructor. For those who opt for the final exam, every assignment will be worth 30% of your final grade. For those who opt for the term paper, your two essays will be worth 25% of your final grade each, and your term paper will be worth 40%. Participation will count toward the other 10% of your final grade.

Reading Schedule

(Any changes will be announced in class.)

Aug. 30th, The Earliest Philosophy of Science
Logical Positivism and the Language of Science

Week 1: Sept. 4th, 6th, Semantic Empiricism and Realism

Sept. 4th: Nagel's "Experimental Laws and Theories" and "The Cognitive Status of Theories" (B&R pp. 132-140, and 197-210).

Sept. 6th: Putnam's "Realism in Mathematics and Elsewhere" on Blackboard.

Week 2: Sept. 11th, 13th, Skeptical Challenges: The Quine-Duhem Problem

Sept. 11th: Duhem's "Physical Theory and Experiment" on Blackboard. Quine's "Two Dogmas of Empiricism" sections 1, 2, 5, 6 (B&R pp. 340-361). Short paper topics distributed.

Sept. 13th: Peter Achinstein's "The Grue Paradox" in (B&R pp. 307-320).

Week 3: Sept. 18th, 20th The Pessimistic Induction and the Challenge of History

Sept. 18th: Laudan's "A Confutation of Convergent Realism" (B&R pp. 211-233), Kuhn, Preface, Introduction, Chapters 1,2. Short papers due.

Sept. 20th: Kuhn, Chapters 3-5.

Week 4: Sept. 25th, Sept 27th, Kuhn and the Deeper Challenge of History

Sept. 25th: Kuhn, Chapters 6-8.

Sept. 27th: Kuhn, Chapters 9-11.

Week 5: Oct. 2nd, 4th, The Rationality of Scientific Change

Oct. 2nd: Kuhn, Chapters 12-13. Kuhn's "Objectivity, Value Judgment, and Theory Choice" (B&R pp. 421-437). First paper topics distributed.

Oct. 4th: Shapere's "The Structure of Scientific Revolutions" (B&R pp. 410-420).

Week 6: Oct. 9th, 11th, The Theory-ladenness of Observation

Oct. 9th: Hanson's "Seeing and Seeing As" in (B&R 321-339).

Oct. 11th: Fodor's "Observation Reconsidered" on Blackboard. First papers due Friday Oct. 12th.

Week 7: Oct. 23rd, 25th Empiricism Strikes Back

Oct. 23rd: van Fraassen, Chapters 1 and 2.

Oct. 25th: van Fraassen, Chapter 3.

Week 8: Oct. 30th, Nov. 1st, Constructive Empiricism on Explanation

Oct. 30th: van Fraassen, Chapter 4

Nov. 1st: van Fraassen, Chapter 5

Week 9: Nov. 6th, 8th, The Return of Realism: The Case Against Constructive Empiricism

Nov. 6th: Gutting's "Scientific Realism versus Constructive Empiricism: A Dialogue" in (B&R 234-247). Second paper topics distributed.

Nov. 8th: Psillos, Chapter 9. Kitcher's "Realism and Scientific Progress" sections 1 and 5, on Blackboard.

Week 10: Nov. 13th, Nov 15th, Inference to the Best Explanation Defended

Nov. 13th: Psillos, Chapter 4.

Nov. 15th: Leplin's "A Theory's Predictive Success can Warrant Belief in the Unobservable Entities it Postulates" on Blackboard.

Week 11: Nov 20th Against Underdetermination

Nov. 20th: Laudan and Leplin's "Empirical Equivalence and Underdetermination" in (B&R pp. 362-384). Second paper due.

Week 12: Nov 27th, 29th Meeting Skeptical Challenges

Nov. 27th: Psillos, Chapter 8. Stanford's "Refusing the Devil's Bargain" on Blackboard.

Nov. 29th: Psillos, Chapter 5. Kitcher's "Realism and Scientific Progress" sections 3 and 4, on Blackboard.

Week 13: Dec. 4th, 6th Resisting Pessimism with Language

Dec. 4th: Kitcher's "Theories, Theorists, and Theoretical Change" (B&R pp. 163-188).
Psillos, Chapter 12 pp. 280-300.

Academic accommodations are available for students with disabilities who are registered with the Office of Disability and Support Services. Students in need of disability accommodations should schedule an appointment with me early in the semester to discuss any accommodations for this course which have been approved by the Office of Disability and Support Services, as indicated in your DSS accommodation letter.