

Philosophy 416/516, Philosophy of Science, Call # 05605/05616, Fall 2007

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Office Hours: Mon. and Wed. 2:10-3:00
and By Appointment.

Final Exam: Tuesday, November 20, at 2:30 p.m.

Realism and Revolutions

According to one classical theory of empirical science, good empirical scientists experiment, gather data, explain them with simple theoretical hypotheses, and thereby proceed rationally toward the truth. Although doubts about the adequacy of this picture have been raised in every century since antiquity, an important, original and highly influential attack of the view was presented by Thomas Kuhn in his celebrated monograph *The Structure of Scientific Revolutions (Third Edition 1996)*. Kuhn's critique called into question many of fundamental ingredients of the picture--including the concept of absolute truth and the determinacy of rational choice--and it provided an alternative model for scientific change that dispensed with these notions. In the first half of this course, following some background material, we will present an overview of Kuhn's ideas about Scientific Revolutions and discuss a number of alternatives and reactions, thereto. Following this, we will focus attention on one constellation of issues that will be raised in the first part of the course, namely, the issues surrounding the realism-antirealism debate.

Required Texts: *Philosophy of Science*, edited by Martin Curd and J.A. Cover, W.W., and selected handouts.

Basis For Grading: A midterm and final examination, each of which students will have one week to complete. The final grade will be determined on the basis of performance on the examinations and class participation. Graduate students will be held to a higher standard than will undergraduates for the purpose of evaluating their written examinations.

Attendance Policy: Required.

Policy Concerning Academic Dishonesty: Anyone found guilty of academic dishonesty will receive a failing grade for the course and be reported to the Dean.

Outline of Course: Weeks, Readings.

1. The Confirmation of Laws and Theories, R. Carnap (H)
2. Science: Conjecture and Refutation, K. Popper (CC)
Physical Theory and Experiment, P. Duhem (CC)

3. Selection from *The Structure of Scientific Revolutions*, T. Kuhn (H)
The Nature and Necessity of Scientific Revolutions, T. Kuhn (CC)
The Structure of Scientific Revolutions, D. Shapere (H)
4. *Falsificationism and the Methodology of Scientific Research Programs*, I. Lakatos (H)
Objectivity, Value Judgment and Theory Change, T. Kuhn (CC)
5. *Dissecting the Holistic Picture of Scientific Change*, L. Laudan (CC)
The Ontological Status of Theoretical Entities, G. Maxwell (CC)
6. *Arguments Concerning Scientific Realism*, B. van Fraassen (CC)
Realism versus Constructive Empiricism, A. Musgrave (CC)
7. *A Confutation of Convergent Realism*, L. Laudan (CC)
An Antirealist Explanation of the Success of Science, K. Stanford (H)
8. *Experimentation and Scientific Realism*, I. Hacking (CC)
A Case for Scientific Realism, E. McMullin (H)
9. *The Natural Ontological Argument*, A. Fine (CC)
NOA's Ark--Fine for Realism, A. Musgrave (CC)
10. *Reading Nature: The Interpretation of Scientific Theories* K. Stanford (H)