

Philosophy of Science

Fall 2009

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New York University

Class Meeting: MW 11:00-12:15 (5 Washington Place, 2nd floor seminar room)

Office Hours: R 11-12:30 and by appointment (5 Washington Place, 407)

Writing Tutors:

Chris Frank, chris.frank@nyu.edu

Miriam Haier, mrh310@nyu.edu

Course Sketch

This course is a historical introduction to the philosophy of science, from the early 20th century to the present. We address the following questions: What is science? How does it work? When it works, what kind of knowledge does it provide? More specifically, we will talk about the problem of induction, the rationality of theory change, scientific explanation, and ask whether theoretical science can give us knowledge of an unobservable world.

Required Books

Theory and Reality: An Introduction to the Philosophy of Science (2003) Peter Godfrey-Smith

The Structure of Scientific Revolutions, 3rd edition (1996) Thomas Kuhn

These are available in the NYU bookstore.

Other Readings

I will post other readings in PDF form on Blackboard. Many of the articles we read will be significantly shortened in order to make the reading more manageable. Consequently, please read the versions I've posted rather than those you might find on-line or from other sources. The schedule below is tentative. Always use Blackboard to get your assignments.

Reading Schedule (subject to revision)

9/9

Introduction

topics: survey of problems for the semester, background on the Scientific Revolution

reading: 1) (optional) chapter 1 of *Theory & Reality*

9/14

Logical Positivism

topics: analytic/synthetic distinction and the verifiability theory of meaning

reading: 1) Ayer, *Language, Truth and Logic* selections (BB)

2) chapter 2, sections 2.1 to 2.3 of *Theory & Reality*

9/16

Logical Positivism

topics: analytic/synthetic distinction and the verifiability theory of meaning
reading: *same as previous class*

9/21

A Challenge to Logical Positivism

topics: holism and a rejection of the analytic/synthetic distinction

reading: 1) Quine, "Two Dogmas of Empiricism" (BB)
2) chapter 2, sections 2.4 and 2.5 of *Theory & Reality*

9/23

A Challenge to Logical Positivism

topic: holism and a rejection of the analytic/synthetic distinction

reading: *same as previous class*

9/30

The Problem of Induction, The New Riddle of Induction

reading: 1) Bertrand Russell "The Problem of Induction"
2) Nelson Goodman "The New Riddle of Induction"
3) chapter 3, section 1, 2 and 4 (skip 3) of *Theory & Reality*

10/5

Solutions to the New Riddle of Induction?

reading: 1) Nelson Goodman, *Fact, Fiction and Forecast*, chapter 4
2) W. V. O. Quine, "Natural Kinds" (1969)
3) (optional) Israel Scheffler "Inductive Inference" (1958)

10/7

Falsificationism

reading: 1) Sir Karl Popper, "Conjectures and Refutations"
2) chapter 4 of *Theory & Reality*

10/12 (in class) – essay #1 draft version due

10/12

Kuhn, part 1

reading: 1) Thomas Kuhn, *The Structure of Scientific Revolutions*, chapters 1 - 8
2) chapter 4 of *Theory & Reality*

10/14

Kuhn, part 2

reading: 1) Thomas Kuhn, *The Structure of Scientific Revolutions*, chapter 9 - 13
and postscript
2) chapter 5 of *Theory & Reality*

10/14 to 10/16 – essay #1, conferences with writing tutors

10/19

Theory and Observation

reading: 1) Hanson, "Observation"
2) Fodor, "Observation Reconsidered"

10/21

Imre Lakatos and Frameworks

reading: 1) Lakatos "Falsification and the Methodology of Scientific Research Programmes" (short selection)
2) chapter 7 of Theory & Reality

10/23 (Friday) – essay #1 final version due (on Blackboard)

10/26

The Sociology of Science

reading: 1) Leviathan and the Air-Pump, chapter 2 (part 1 and part 2)

10/28

Review for Midterm

11/2

Midterm

11/4

Scientific Realism 1

reading: 1) 12.1-12.3 of Theory and Reality
2) Laudan, "A Confutation of Convergent Realism"

11/9

Scientific Realism 2

reading: 1) 12.4-12.6 of Theory & Reality
2) Van Fraassen, "To Save the Phenomena"

11/11

Scientific Realism 3

reading: 1) 12.7 of Theory & Reality
2) Worrall "The Best of Both Worlds?"

11/13 (Friday) – essay #2 draft version due (on Blackboard)

11/16

Scientific Explanation 1

reading: 1) Hempel "Explanation and Prediction by Covering Laws"

11/18

Scientific Explanation 2

reading: 1) Kitcher "Explanatory Unification and the Causal Structure of the World"

11/18- 11/20 – conferences with writing tutors , essay #2

11/23

Scientific Explanation 3

reading: 1) Dowe (2000) Review Article: Causality and Explanation

11/30

Reduction and the Unity of Science

reading: none

12/2

Against reduction

reading: 1) Jerry Fodor (1974) "Special Sciences"

12/4 – essay # 2 final version due (on Blackboard)

12/7

Against reduction, cont.

reading: 1) Ned Block (1996) "Anti-Reductionism Slaps Back"

12/9

The implausibility of non-reduction

reading: 1) Loewer (2009) "Why is there anything except physics?"

12/14

Conclusion, and review for Final Exam

reading: none

Final Exam 12/21, 10:00 - 11:50

Assignments and Grading

Reading responses (2): 5% each	(due 9/29 and 11/4)
Essay #1: 20%	(draft due: 10/9, final due: 10/23)
Essay #2: 20%	(draft due: 11/13, final due: 12/4)
Midterm Exam: 25%	(covering material from first half, on 11/2)
Final Exam: 25%	(covering material from second half)

The Revision Process and the Writing Tutors

This course will provide an opportunity to improve your philosophical writing and thinking. You will receive feedback twice on each of your essays. The first set of feedback, provided by peer Writing Tutors on the first draft of your essays, will address issues with your writing. The second set of feedback, provided by your instructor on the final draft of your essays, will address your arguments and analysis.

The Writing Tutors

The writing tutors are NYU students who have been trained in writing instruction and peer tutoring. Tutors are **not graders** but are **peer mentors**, and their role is to encourage and challenge students on issues found in their writing. Tutors are not trained to evaluate course content. Instead, they will focus their comments on the following kinds of questions: Does this draft respond effectively to the assignment? Is the argument clearly and compellingly set up? While tutors will doubtless engage in spirited discussions about course content during their conferences, they will do so only as interested peers. Philosophy faculty are responsible for assessing content.

The Writing and Revision Process

Here is the procedure in more detail. For each paper there are two due dates, one for the draft and one for the final paper. Although your first submission is labeled "draft", it should be a complete paper, not an outline or a rough sketch. [If the draft is not complete it will be considered late and sent back to you for resubmission (see *Late Paper Policy* below).] Writing tutors will read your paper and send back comments to you about your paper within about a week of turning it in. You will then have a little time to look over the comments, following which you will meet for a one-on-one conference with a writing tutor. You will then have a number of days to revise your paper in light of these comments and to submit a final draft.

I am very enthusiastic about the writing/revision process and our collaboration with the writing tutors. It should be rewarding for all participants!

Late Paper Policy

Due dates in this course will be enforced. This is important for reasons of fairness and it is also crucial given the nature of the writing and revision process. Extensions will only be granted for first or final drafts only in case of major illness or a

family emergency. All extensions will require notes of excuse from the dean. Without a note, papers that are late will be considered *unexcused* and will be penalized. If you have some non-emergency reason to request an extension, you should contact me **at least five days** before the due date.