

PHIL/HPS 83801 Philosophy of Science  
TTh 2:20-3:35  
116 DeBartolo

Fall 2020

Prof. Don Howard  
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Office Hours: TTh 12:45-1:45

### ***Required Texts:***

Michael Friedman. *Dynamics of Reason*. Stanford, CA: Center for the Study of Language and Information, 2001. (Go here <http://www-csli.stanford.edu/pubs/> and search. Also available from Amazon.com.) All other readings will be distributed by email.

***Course Requirements:*** There will be a mid-term and a final examination, each an in-class, essay examination worth 25% of your final grade. A term paper (minimum 15 pages) will be worth 40% of your final grade. The remaining 10% of your grade will be based on class participation.

***One-minute Papers:*** At the end of every class session, we will stop a minute or two early, so as to give you the opportunity to write “one-minute papers.” These will be ungraded, but required of every student at the end of every class. Normally no more than two paragraphs long, these one-minute papers must contain answers to two questions: (1) What was the most important issue addressed in today’s class? (2) What issue remains most unclear in your mind at the end of today’s class?

### ***Schedule:***

#### ***Date: Topic:***

#### ***Readings:***

Aug. 11 Introduction to the Course

Aug. 13 The General Historical  
Background

Philipp Frank, “Introduction: Historical Background”

Aug. 18 Mach and Positivism

Ernst Mach, “Introductory Remarks: Antimetaphysical” and  
“The Guiding Principles of My Scientific Theory of  
Knowledge and Its Reception by My Contemporaries”

Aug. 20 Conventionalism

Henri Poincaré, “Experiment and Geometry”; Pierre  
Duhem, “Physical Theory and Experiment”

Aug. 25 Neo-Kantianism

Alan Richardson, “The Background to Early Carnap:  
Themes from Kant” and “The Fundamentals of  
Neo-Kantian Epistemology”

Aug. 27 Logicism and Formalism

Rudolf Carnap, “The Logicist Foundations of  
Mathematics”; John von Neumann, “The Formalist  
Foundations of Mathematics”

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Sep. 1	Schlick, Reichenbach, and Carnap before the Vienna Circle	Moritz Schlick, "Critical or Empiricist Interpretation of Modern Physics?"
Sep. 3	" " "	
Sep. 8	The Founding of the Vienna Circle	Otto Neurath et al., "The Scientific Conception of the World: The Vienna Circle"; Moritz Schlick, "The Turning Point in Philosophy" and "The Future of Philosophy"
Sep. 10	The Protocol-Sentence Debate	Rudolf Carnap, "Protocol Statements and the Formal Mode of Speech"; Otto Neurath, "Protocol Statements"; Moritz Schlick, "On the Foundation of Knowledge"
Sep. 15	Verificationism and Falsificationism	Rudolf Carnap, "The Elimination of Metaphysics through Logical Analysis of Language"; Carl G. Hempel, "The Empiricist Criterion of Meaning"; Karl Popper, "Science: Conjectures and Refutations"
Sep. 17	The Left Wing of the Vienna Circle	Marx Wartofsky, "Positivism and Politics: The Vienna Circle as a Social Movement"; Otto Neurath, "Sociology in the Framework of Physicalism"
Sep. 22	Philosophy as Logical Syntax	Michael Friedman, "Analytic Truth in Carnap's Logical Syntax of Language"; Rudolf Carnap, "Empiricism, Semantics, and Ontology"
Sep. 24	The Observational/Theoretical Distinction	Carl G. Hempel, "The Theoretician's Dilemma"; Grover Maxwell, "The Ontological Status of Theoretical Entities"
Sep. 29	<b><i>Mid-term Examination</i></b>	
Oct. 1	Scientific Realism	Ernan McMullin, "A Case for Scientific Realism"; Ian Hacking, "Experimentation and Realism"
Oct. 6	Constructive Empiricism	Bas C. van Fraassen, "Arguments Concerning Scientific Realism" and "To Save the Phenomena"
Oct. 8	The Natural Ontological Attitude	Arthur Fine, "The Natural Ontological Attitude" and "And Not Anti-realism Either"
Oct. 13	Structural Realism	Anjan Chakravartty, "Structuralism as a Form of Scientific Realism"
Oct. 15	Explanation	Ernest Nagel, "The Deductive Pattern of Explanation"; Carl G. Hempel, "Inductive-Statistical Explanation"

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Oct. 20	The Nature of Scientific Laws	Ernest Nagel, "The Logical Character of Scientific Laws"; Fred I. Dretske, "Laws of Nature"
Oct. 22	Theories of Confirmation	Carl G. Hempel, "Studies in the Logic of Confirmation"
Oct. 27	The New Riddle of Induction	Nelson Goodman, "The New Riddle of Induction"
Oct. 29	Dewey, Quine, and Epistemological Naturalism	W.V.O. Quine, "Two Dogmas of Empiricism," "Epistemology Naturalized"
Nov. 3	Feminist Science Theory	Janet Kourany, "A Philosophy of Science for the Twenty- First Century"
Nov. 5	Friedman, Kuhn, and the Contingent A Priori	Michael Friedman, Dynamics of Reason, Part One
Nov. 10	Friedman, Kuhn, and the Contingent A Priori	Michael Friedman, Dynamics of Reason, Part Two
Nov. 12	Critical Responses to Friedman	Don Howard, "'Let me briefly indicate why I do not find this standpoint natural.' Einstein, General Relativity, and the Contingent A Priori"; Thomas Ryckman, "The 'Relativized A Priori': An Appreciation and a Critique"
Nov. 18	<b><i>Term Paper Due</i></b>	
Nov. 20	<b><i>Final Examination 10:30-12:30 am</i></b>	