

PHILOSOPHY 321: Philosophy of Science

Spring 2012

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Classes:

- 2 seminars per week, 1.30-2.50pm T/Th in McCosh 60.

Assessment:

- Short paper (750 words), due March 16th, 20%
- Midterm exam, in class on March 15th (the Thursday before Spring recess), 20%
- Long paper (1500 words), due May 15th (Dean's Date), 30%
- Final exam, time and date TBD, 20%
- Class participation, 10%

Syllabus

All readings will be available in PDF format on Blackboard.

* = optional reading

Feb 7th Introduction, no reading

Topic 1: Realism and Anti-Realism

Feb 9th Logical Empiricism

- Ayer, *Language Truth and Logic*, chapters 1 and 3
- Quine, "Two Dogmas of Empiricism" sections 1, 2, 5, 6
- *Ayer, *Language Truth and Logic*, Introduction pp. 5-16
- *Carnap, "The Methodological Status of Theoretical Concepts"

Feb 14th Realism and Anti-Realism

- van Fraassen, *The Scientific Image* chapter 1 and chapter 2 p. 6-25
- Boyd, "On the Current Status of the Issue of Scientific Realism", sections 1, 2, 3, 6
- *Schlick, "Positivism and Realism"

Feb 16th Theory and Observation

- Maxwell, "The Ontological Status of Theoretical Entities", focus on pp. 3-15
- Fodor, "Observation Reconsidered"
- *Feyerabend, "An Attempt at a Realistic Interpretation of Experience"

Topic 2: Confirmation

- Feb 21st Hume's Problem
- Salmon, "An Encounter with David Hume"
 - *Salmon, *The Foundations of Scientific Inference*, pp. 1-54
- Feb 23rd Early Confirmation Theory
- Hempel, "Studies in the Logic of Confirmation 1", sections 1-5 (focus on 3-5)
 - Goodman, *Fact, Fiction and Forecast* chapter 3
 - *Hempel, "Studies in the Logic of Confirmation 2", sections 7 and 8
- Feb 28th Popper
- Popper, "Science: Conjectures and Refutations"
 - Newton-Smith, *The Rationality of Science*, chapter 3
- March 1st Bayesianism 1
- Strevens, *Notes on Bayesian Confirmation Theory*, chapters 1-5
- March 6th Bayesianism 2
- Strevens, *Notes on Bayesian Confirmation Theory*, chapters 7-8

Topic 3: The Metaphysics of Laws and Chance

- March 8th Laws
- Loewer, "Humean Supervenience"
 - Beebe, "The Non-Governing Conception of Laws of Nature"
 - *Lewis, *Philosophical Papers: Volume 2*, Introduction
- March 13th Chance
- Gillies, *Philosophical Theories of Probability*, pp. 88-105, 113-136

March 15th MIDTERM EXAM

SPRING RECESS

- March 27th Lewis on Chance
- Loewer, "David Lewis' Humean Theory of Objective Chance"
 - Lewis, "Humean Supervenience Debugged"
 - *Briggs, "The Anatomy of the Big Bad Bug"

Topic 4: The Direction of Time

March 29th Temporal symmetry and thermodynamics

- Albert, *Time and Chance* chapters 2 and 3
- North, “Time in Thermodynamics”, pp. 1-12
- *Albert, *Time and Chance* chapter 1

April 3rd Statistical Mechanics and the past hypothesis

- Albert, *Time and Chance* chapter 4
- North, “Time in Thermodynamics”, pp. 12-39.

April 5th NO CLASS

April 10th Counterfactuals

- Lewis, “Counterfactual Dependence and Time’s Arrow”
- Elga, “Statistical Mechanics and the Asymmetry of Counterfactual Dependence.”

April 12th Epistemic catastrophe

- Sean Carroll, *From Eternity to Here*, chapter 10

Topic 5: Geometry and Space

April 17th Chirality

- Sklar, *Space, Time and Spacetime*, 157-167
- Pooley, “Handedness, Parity Violation, and the Reality of Space”

April 19th The bucket argument

- Sklar, *Space, Time and Spacetime*, 167-191.
- Horwich, “On the Existence of Time, Space and Space-Time”

April 24th Symmetry

- Sklar, *Space, Time and Spacetime*, pp. 202-206
- Maudlin, “Buckets of water and waves of space”, pp. 183-192.

April 26th Measurement theory

- Field, excerpts from “Can We Dispense with Spacetime?”
- Maudlin, “Buckets of water and waves of space”, pp. 192-196.

May 1st Introduction to relativity

- Sklar, *Space, Time and Spacetime*, pp. 9-25, 55-79.

May 3rd Knowledge of geometry

- Reichenbach, *The Philosophy of Space and Time*, p. 1-37
- *Friedman, “Geometry, Convention and the Relativized Apriori: Reichenbach, Schlick and Carnap.”
- *Sklar, *Space, Time and Spacetime*, pp. 79-147.