

## **Phil 125: Philosophy of Science**

Fall 2006

Tue. and Thurs., 6-7:45pm.

Professor: Abe Stone

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Office hours: Mon. 2:00-3:00pm; Thurs. 11:00am-12:00pm (or by appointment).

### **Course Description**

We will read some of the classic texts which created and set the stage for later developments within the subdiscipline now known as philosophy of science. The course will be divided into two halves, corresponding to two fundamentally different views about what makes science distinctively rational (due to Rudolf Carnap and Karl Popper); in each case we will also read important works which were taken to undermine the view in question. We will finish with a reading from the influential philosopher of science Ian Hacking, in which he assesses all of these developments and points the way toward things that were to happen later.

### **Course Requirements**

Two 6–10 page papers **or** exams (in both cases there will be a choice between a more open-ended paper assignment and a more structured take-home exam), due Tues., Oct. 31 and Wed., Dec. 6.

### **Texts**

Carnap, *The Logical Structure of the World* (known, following its German title, as “the *Aufbau*”).

Kuhn, *The Structure of Scientific Revolutions*.

Popper, *The Logic of Scientific Discovery*.

The above texts should be available at the Literary Guillotine. Readings not on the above list will be available on e-reserve.

### **Readings**

Thur., Sep. 21: (no reading, first class).

## I. Carnap/Quine

Tue., Sep. 26: Carnap, *Aufbau*, Preface to 1st Edition (pp. xv–xviii); §§1–5 (pp. 5–10); §§17–25 (pp. 31–43).

Thur., Sep. 28: Carnap, *Aufbau*, §§26–41 (pp. 47–70); §§46–60 (pp. 78–97).

Tue., Oct. 3: Carnap, *Aufbau*, §67 (pp. 107–9); §§95–6 (pp. 152–4); §§98–103 (pp. 156–63); §§125–8 (pp. 194–9); §157 (p. 246); §§160–61 (pp. 254–7); §§165–9 (pp. 263–72).

Thur., Oct. 5: Carnap, *Aufbau*, §§175–83 (pp. 281–98).

Tue., Oct. 10: Carnap, *The Unity of Science*, §§1–3 and 6; Neurath, “Protocol Sentences”; Carnap, “On Protocol Sentences.”

Thur., Oct. 12: “The Methodological Character of Theoretical Concepts,” §§1–6, beginning of §7 (through the paragraph that ends on top of p. 54), and §§8–10; Putnam, “What Theories Are Not.”

Tue., Oct. 17: Quine, “Epistemology Naturalized.”

Thur., Oct. 19: continued discussion of “Epistemology Naturalized.”

## II. Popper/Kuhn

Tue., Oct. 24: Popper, *LSD*, ch. 1 and 2 (pp. 3–34).

Thur., Oct. 26: Popper, *LSD* ch. 3 (pp. 37–56).

Tue., Oct. 31: Popper, *LSD*, ch. 4 (pp. 57–73) (and **first paper/exam due**).

Thur., Nov. 2: Popper, *LSD*, ch. 5 (pp. 74–94).

Tue., Nov. 7: Popper, *LSD*, ch. 10 beginning and §79 (pp. 248–52); §82 (pp. 264–7); §84 through end (including Addendum), pp. 273–82.

Thur., Nov. 9: Neurath, “Pseudorationalism of Falsification”; Putnam “The ‘Corroboration’ of Theories”; Lakatos, “Popper on Demarcation and Induction,” through end of part I (pp. 241–52).

Tue., Nov. 14: Kuhn, *SSR*, ch. 1–5, pp. 1–51.

Thur., Nov. 16: Kuhn, *SSR*, ch. 6–8, pp. 52–91.

Tue., Nov. 21: Kuhn, *SSR*, ch. 9–10, pp. 92–135.

Thur., Nov. 23: **no class** (Thanksgiving)

Tue., Nov. 28: Kuhn, *SSR*, ch. 11–13, pp. 136–73.

### III. Epilogue: Hacking

Thur., Nov. 30: Hacking, *Representing and Intervening*, Introduction and ch. 10.

Wed., Dec. 6: **second paper/exam due**

#### Recommended for further reading

Apologies for the somewhat random nature of this part. I may add more things to it, so stay tuned. (Note: at any given moment some of the statements below about what is on reserve may be optimistic projections.)

Carnap, “Intellectual Autobiography,” in Schilpp, ed., *The Philosophy of Rudolf Carnap* (this book is on reserve at McHenry; it has other goodies in it, too, many of them mentioned below)—especially §§1–3 (pp. 3–34), §5 (pp. 44–6) and §11 (pp. 67–71).

Carnap, “Replies to my Critics,” in Schilpp, ed., *The Philosophy of Rudolf Carnap*. See especially Carnap’s replies to Popper (pp. 877–881) and Quine (pp. 915–22; the final paragraph is especially important).

Carnap, “On the Application of Inductive Logic,” *Philosophy and Phenomenological Research* 8 (1947): pp. 133–47. (In part, Carnap’s response to the early version of Goodman’s grue argument.)

Friedman, Michael, *Reconsidering Logical Positivism* (on reserve at McHenry).

Kuhn, “Logic of Discovery or Psychology of Research?,” in Schilpp, ed., *The Philosophy of Karl Popper*, pp. 241–73. (The book is on reserve at McHenry.) (Interesting because Kuhn to a certain extent takes on Popper on Popper’s own terms.)

Kuhn, “Reflections on my Critics,” in Lakatos and Musgrave, eds., *Criticism and the Growth of Knowledge* (this book is on reserve at McHenry; it contains several interesting things, two of which are listed below).

Popper, “The Demarcation Between Science and Metaphysics,” in Schilpp, ed., *The Philosophy of Rudolf Carnap*, pp. 183–226. (The first five sections of this are very relevant to issues we discuss in the class. The last, about probability and induction, is about topics we don’t get to, and is also rather technical.)

Popper, “Replies to My Critics,” in Schilpp, ed., *The Philosophy of Karl Popper*, especially pp. 976–87, 993–1013, 1144–8. (e-reserve). (This is the most recommended among the recommended readings. Given one more class session, this would have been required.)

Popper, “Normal Science and its Dangers,” in Lakatos and Musgrave, eds., *Criticism and the Growth of Knowledge*. (e-reserve). (Similar, but not identical, I think, to Popper’s response to Kuhn in the Schilpp volume.)

Putnam, “‘Degree of Confirmation’ and Inductive Logic,” in Schilpp, ed., *The Philosophy of Rudolf Carnap* (e-reserve). (This is a whole topic we won’t get into; you could start to by looking at this. Putnam wants to debunk everything, as usual, but he includes pointers to a lot of the earlier literature. Note that this originally appeared in *The Philosophy of Rudolf Carnap*, ed. Schilpp; Carnap replies to it on pp. 983–9.)

Quine, “Carnap and Logical Truth,” in Schilpp, ed., *The Philosophy of Rudolf Carnap*, pp. 385–406. (Another attack on the analytic/synthetic distinction, and related points.)

Richardson, Alan, *Carnap’s Construction of the World: The Aufbau and the Emergence of Logical Empiricism* (on reserve at McHenry).

Watkins, John, “Against ‘Normal Science,’” in Lakatos and Musgrave, eds., *Criticism and the Growth of Knowledge*. (e-reserve). (A Popperian attack on Kuhn—seemingly not a very comprehending one, however, although Popper himself describes it as “brilliant” in his response to Kuhn in the Schilpp volume, n. 202.)