

## Philosophy of Probability (522) – Fall, 2008 – Elliott Sober

**Office hours:** My office hours are on Wednesday 1:30-3:30 in 5199 Helen C. White Hall. I also will be available to meet with you at other times, by appointment. **Requirements:** Attend all classes, do the readings, and be prepared to discuss them in class. There will be a few homework problems, one exam, two papers on assigned topics, and a final.

**Readings:** Two books are available at University Bookstore: Brian Skyrms' *Choice and Chance* (4<sup>th</sup> edition) and my *Evidence and Evolution*. Both are on reserve at the College Library. We also will read:

- H. Reichenbach, "The Principle of the Common Cause," from *Direction of Time*. U of Cal. Press, 1956.  
 B. Van Fraassen, "The Charybdis of Realism – Epistemological Reflections on Bell's Inequality." *Synthese* 1982, 52: 25-38.  
 E. Sober, "Venetian Sea levels, British Bread Prices, and the Principle of the Common Cause." *British Journal for the Philosophy of Science*, 2001, 52: 1-16.  
 K. Hoover, "Nonstationary Time Series, Cointegration, and the Principle of the Common Cause," *British Journal for the Philosophy of Science* 2003, 54: 527-551.  
 N. Cartwright, "Causal Laws and Effective Strategies," *Nous*, 1979, 13: 419-437.  
 E. Sober, "What is Evolutionary Altruism?" In B. Linsky and M. Matthen (eds.), *New Essays on Philosophy and Biology* University of Calgary Press, 1988, pp. 75-99.  
 B. Fitelson, "The Plurality of Bayesian Measures of Confirmation and the Problem of Measure Sensitivity." *Philosophy of Science*, 1999, 66: S362-S378.  
 C. Hempel, "Empiricist Criteria of Cognitive Significance." In *Aspects of Scientific Explanation and Other Essays in the Philosophy of Science*. Free Press, 1965.  
 D. Hume, "On Miracles," Section 10 of his *Enquiry Concerning Human Understanding*, 1748.  
 J. Earman, "Bayes, Hume, Price, and Miracles." In R. Swinburne, ed., *Bayes' Theorem*, 2002.  
 J. Earman, "Old Evidence, New Theories." *Pacific Philosophical Quarterly* 1989 70: 323-340.  
 C. Hitchcock and E. Sober. "Prediction versus Accommodation and the Risk of Overfitting," *British Journal for the Philosophy of Science*, 2004, 55: 1-34.  
 E. Sober, "Absence of Evidence and Evidence of Absence."  
 J. Weisberg, "Firing Squads and Fine Tuning – Sober on the Design Argument." *British Journal for the Philosophy of Science* 2005, 56: 809-821.  
 T. Gilovich, R. Valone, and A. Tversky, "The Hot Hand in Basketball – On the Misperception of Random Sequences." *Cognitive Psychology* 1985, 17: 295-314.  
 R. Wardrop, "Statistical Tests for the Hot-Hand in Basketball" (on his UW web site).  
 A. Dawid, "Bayes' Theorem and Weighing of Evidence." In R. Swinburne, ed., *Bayes' Theorem*, 2002.  
 N. Sesardic, "Sudden Infant Death or Murder? A Royal Confusion about Probabilities." *British Journal for the Philosophy of Science*, 2007, 58: 299-329).

Week	Date	Schedule of Readings, Exam, Papers
1	9/2-4	Logic – Skyrms, ch 1-2; the problem of induction -- Skyrms, ch 3
2	9/9-11	the grue paradox – Skyrms, ch 4; the probability calculus -- Skyrms, ch 6
3	9/16-18	Principle of the common cause -- Reichenbach, Sober (V/B), Hoover, Van Fraassen
4	9/23-25	Simpson's paradox -- Cartwright, Sober (altruism); kinds of prob -- Skyrms, ch 7
5	9/30-10/2	prob and sci induction -- Skyrms, ch 8, Fitelson; gambler's fallacy, the representativeness heuristic, and the Monty Hall problem (Wikipedia articles)
6	10/7-9	Review for first exam; <b>First exam</b>
7	10/14-16	Bayesianism, likelihoodism, frequentism -- Sober, ch 1
8	10/21-23	B, L, F (cont'd); hot hands – Gilovich, Wardrop
9	10/28-30	the design argument – Sober, ch. 2
10	11/4-6	design argument (cont'd) -- Hempel; Miracles – Hume and Earman
11	11/11-13	Miracles (cont'd); <b>First Paper due</b> , problem of old evidence – Earman
12	11/18-20	Prediction v accommodation – Hitchcock and Sober; Fine-tuning and observation selection effects -- Weisberg and Sober (Absence).

13	11/25	Observation selection effects (cont'd).
14	12/2-4	Sudden Infant Death Syndrome -- Dawid and Seserdic
15	12/9-11	<b>Second Paper due</b> ; review for final.