Introduction to Science Studies. I. HIGR 238; SOCG 255A; PHIL 209A; COGR 225A Fall 2007

Professor Robert S. Westman Tuesdays, 9:30 a.m.-12:20 p.m.

Science Studies Seminar Room (3rd Floor, H&SS)

Office: H&SS 4027

Office Hours: Wednesdays, 1-3

!Indicates Sourcebook (available only from www.universityreaders.com)

Objectives and Requirements: This seminar is a historical introduction to many of the main problems of Science Studies up to the 1990s. It is required for all first-year students in the Science Studies Program; other interested students only by permission of the instructor.

1.Oct. 2: Science Studies: Some Opening Deconstructions

!Sydney Ross, "Scientist: The Story of a Word," Annals of Science, 1962, 18:65-85.

!Lorraine Daston and Peter Galison, "The Image of Objectivity," Representations, 1992, 40:81–128.

!Peter Dear, "What is the History of Science the History Of?" Isis, 2005, 96:390-406.

2. Oct. 9: From the Logical Positivists to Popper.

!Robert Klee, Introduction to the Philosophy of Science: Cutting Nature at its Seams (New York: Oxford UP, 1997), pp. 28-61.

!Karl Popper, Conjectures and Refutations: The Growth of Scientific Knowledge. (New York: Harper Torchbooks, 1965; first pub. 1962), pp. 33-65.

3. October 16: Underdetermination and Anti-Realism: Pierre Duhem--Scientist, Philosopher and Historian of Science.

!Pierre Duhem, "Some Reflections on the Subject of Experimental Physics," tr. Roger Ariew and Peter Barker in Pierre Duhem: Essays in the History and Philosophy of Science (Indianapolis: Hackett Pub., 1996), pp. 75–111 ("Quelques réflexions au sujet de la physique experimentale," Revue des questions scientifiques, 1894, 36:179–229).

!Pierre Duhem, From: "To Save the Phenomena: Essay on the Concept of Physical Theory from Plato to Galileo," tr. Ariew and Barker, pp. 131–156 (SOZEIN TA PHAINOMENA: essai sur la notion de théorie physique de Platon *B* Galilée [Paris: Hermann, 1908], chap. 7 and Conclusion).

4. Oct. 23: Sociology of Scientific Knowledge, ca. 1930s-70s.

!Robert K. Merton, "Motive Forces of the New Science (1938)," from Science, Technology and Society in Seventeenth Century England (New York: Howard Fertig, 1970; repr. in I. Bernard Cohen ed., Puritanism and the Rise of Modern Science (New Brunswick and London: Rutgers Univ. Press, 1990), pp.112–131; repr. from 1938).

!Robert K. Merton, "The Normative Structure of Science," (1942) in Robert K. Merton, The Sociology of Science, ed. and intro. N.W. Storer (Chicago: Univ. of Chicago Press, 1973), pp. 267–78.

!Boris Hessen, The Social and Economic Roots of Newton's 'Principia', (New York: Howard Fertig, 1971), pp. 1-62.

!Loren Graham, "The Socio-Political Roots of Boris Hessen: Soviet Marxism and the History of Science," Social Studies of Science, 1985, 15: 705-722.

5. Oct. 30: The Scientific Fact as Locus of History, Philosophy and Sociology of Science.

Ludwik Fleck, Genesis and Development of a Scientific Fact. Tr. Fred Bradley and Thaddeus J. Trenn; ed. Thaddeus J. Trenn and Robert K. Merton. Foreword by Thomas S. Kuhn. Chicago: Univ. of Chicago Press, 1979 (first pub. as Entstehung und Entwicklung einer wissenschaftlichen Tatsache: Einführung in die Lehre vom Dekstil und Denkkollektiv [Basel, Switzerland: Benno Schwabe, 1935]).

6. Nov. 6: Scientific Change as Revolution.

Thomas S. Kuhn. The Structure of Scientific Revolutions. Chicago: Univ. of Chicago Press, 1996; first pub. 1962.

7. Nov. 13: In the Wake of Kuhn.

!David Bloor, "The Strong Programme in the Sociology of Knowledge," Knowledge and Social Imagery, (London: Routledge and Kegan Paul, 1976), pp. 1–19. !Trevor Pinch, "Kuhn--The Conservative and Radical Interpretations: Are Some Mertonians 'Kuhnians' and Some Kuhnians 'Mertonians'?" Social Studies of Science, 1997, 27:465-482; first pub., 4S Newsletter, 1982, 78.1, pp.10-25).

!Robert S. Westman, "The Melanchthon Circle, Rheticus, and the Wittenberg Interpretation of the Copernican Theory," Isis, 1975, 66:164–193.

!Recommended: World Changes: Thomas Kuhn and the Nature of Science, ed. Paul Horwich (Cambridge, MA: MIT Press, 1993).

8. Nov. 20: The Localist Turn and the Problem of Rule-Following.

!Peter Winch, The Idea of a Social Science and Its Relation to Philosophy (Atlantic Highlands, NJ: Humanities Press, 1958), pp. 21-39, 138-139.

!Clifford Geertz, "From the Native's Point of View': On the Nature of Anthropological Understanding," 55-70.

!Clifford Geertz, "Common Sense as a Cultural System," in Local Knowledge (New York: Basic Books, 1983), pp. 73-93.

!John Zammito: "How Kuhn Became a Sociologist," A Nice Derangement of Epistemes, (Univ. of Chicago Press, 2004), pp. 123-150 + 318-331(endnotes).

!Michael Friedman, "On the Sociology of Scientific Knowledge and Its Philosophical Agenda," Studies in History and Philosophy of Science, 1998, 29:215–265.

9. Nov. 27: The Experimental Fact at the Origins of Modern Science.

Steven Shapin and Simon Schaffer. Leviathan and the Air Pump. Princeton:

Princeton Univ. Press, 1985.

10. Dec. 4: Science as Practice and Culture.

!lan Hacking, "The Self-Vindication of the Laboratory Sciences," in Pickering ed., pp. 29-64.

!Bruno Latour and Steve Woolgar, Laboratory Life: The Social Construction of Scientific Facts (Princeton: Princeton Univ. Press, 1986; first pub. 1979):

- --Jonas Salk, "Introduction," pp. 11-14.
- --Chap. 1: "From Order to Disorder," pp. 15-42.
- -- Chap. 2: "An Anthropologist Visits the Laboratory," pp. 43-90
- --Postscript to the Second Edition (1986), pp. 273-286

Requirements.

!Weekly Oral Reports

!Final Paper (approx. 25 pp.)

Required Books.

- --Ludwik Fleck, Genesis and Development of a Scientific Fact. Tr. Fred Bradley and Thaddeus J. Trenn; ed. Thaddeus J. Trenn and Robert K. Merton. Foreword by Thomas S. Kuhn. Chicago: Univ. of Chicago Press, 1979
- --Thomas S. Kuhn. The Structure of Scientific Revolutions. Chicago: Univ. of Chicago Press, 1996; first pub. 1962.
- --Steven Shapin and Simon Schaffer. Leviathan and the Air Pump. Princeton: Princeton Univ. Press, 1985.
- -- The UCSD Science Studies Reader. Available only from University Readers.