Sociology 573
Fall 2007
T 4:10-6:50
Office hours: T 2-4, and by appointment

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SOCIOLOGY OF SCIENCE

This seminar is meant to serve as an advanced introduction to the sociological analysis of scientific practice. As such, it provides an overview of central themes and debates in the field of science studies in order to draw out the cognitive, material, cultural and institutional parameters underlying scientific knowledge production. It begins by exploring a set of foundational concerns over how science actually works: the constructedness and/or realness of scientific facts, the relative role of technology in the process and content of science, the rhetorical and other modalities of establishing professional legitimacy and expertise, and so forth. Building on the analytic tools to be gained from this exercise, the rest of the course is structured around specific aspects and contexts of science making. I have selected these topics for their analytical importance, their empirical appeal, and their broader sociological relevance. Obviously, however, this list can only hope to be expository rather than comprehensive. The aim, ultimately, is to whet your appetite for further research in this field of study. In this spirit, I have decided to wait for the class as a whole to determine our last topic of discussion.

COURSE LOGISTICS

Grade
30% attendance and participation
10% class discussion lead-in
10% paper presentation
50% paper

Attendance and Participation
We all know that attendance does not equal participation. This course is designed as a seminar and its success depends on active engagement and dialogic exchange. You are expected to come to class each week fully prepared to analyze, discuss, and debate the issues raised in the assigned reading material.

Class Discussion Lead-in Assignment
You will be responsible for leading the discussion for one of our meetings, to be determined during the second week of class. The idea is not to provide a summary of that week's readings; rather, your job is to come up with a few (3-5) substantive questions in the form of a one-page handout (to be electronically distributed to the rest of the group by 9am on the day of class) to get the discussion rolling. Such questions may target what you consider the key

issue/problematic raised by the author(s) in question, a critical shortcoming in the argument/evidence, a puzzling claim, broader implications, exciting/provocative comparisons, and so forth.

Paper
At the end of the semester, you are to submit a research paper of approximately 20 to 25 pages. Your paper can be either (a) analytic, critically reflecting on a substantive issue covered in the course, or (b) empirical, drawing on extant theoretical perspectives to illuminate the realities of a concrete scientific enterprise. I ask that you decide on a research topic by the end of the 6th week, when you are expected to provide me with a written prospectus and a preliminary bibliography and make an appointment to discuss matters further. During our last meeting, you will be required to give a 10-minute oral presentation on the thesis and potential findings of your project.

Required Texts
Fleck, Ludwig. 1981 *Genesis and Development of a Scientific Fact*. University of Chicago Press.
Gieryn, Thomas. 1999. *Cultural Boundaries of Science: Credibility on the Line.* University of Chicago Press.
Latour, Bruno, and Steve Woolgar. 1986. *Laboratory Life: the Social Construction of Scientific Facts*. Princeton University Press.
Vaughan, Diane. 1997. *The Challenger Launch Decision: Risky Technology, Culture, and Deviance at NASA.* University of Chicago Press

The above books have been ordered at the Livingston Bookstore. A reading pack of the required articles and book excerpts will be available in the library. Let's discuss additional arrangements during our first meeting. Note that required texts in the schedule below are indicated with an asterisk.

CLASS SCHEDULE

September 4 **Introduction: "What's so special about science?"**

(in-class film and discussion on the above topic)

September 11 **Making and Unmaking Facts**

* Fleck, *Genesis and Development of a Scientific Fact*

Kuhn, *The Structure of Scientific Revolutions* (esp. ch. II, III, VI, VII, X, XIII)

September 18 **The Blood and Guts of Science**

* Latour and Woolgar, *Laboratory Life*

Traweek, *Beamtimes and Lifetimes*
Pickering, *Science as Practice and Culture* (esp. ch. 1, 4, 6)

September 25 **Tacit Knowledge and the Problem of Tools**

* Collins, 1974, "The TEA Set: Tacit Knowledge and Scientific Networks, *Science Studies* 4:165-85
* MacKenzie and Spinardi, 1995, "Tacit Knowledge, Weapons Design, and the Uninvention of Nuclear Weapons". *AJS* 101: 44-99.
* Pickering, 1995, *The Mangle of Practice,* chapters 1 and 2

Knorr Cetina, *Epistemic Cultures* (esp. ch. 2, 3, 4)
Baird, *Thing Knowledge* (esp. ch. 3, 7, 8)
Jordan and Lynch, 1992, "The Dissemination, Standardization and Routinization of a Molecular Biological Technique, *Social Studies of Science* 28 : 773-800
Delamont and Atkinson, 2001, "Doctoring Uncertainty: Mastering Craft Knowledge", *Social Studies of Science* 31: 87-107.

October 2 **The Institutional Aspects of Science Revisited**

*Vaughan, *The Challenger Launch Decision*: chapters 1-5, 8, 10

October 9 **Building Credibility: Boundary Work and Collaboration in Science**

* Gieryn, *Cultural Boundaries of Science*: Introduction, 1-4
* Star and Griesemer, 1989, "Institutional Ecology, 'Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907–39". *Social Studies of Science* 19: 387–420.

Galison, *Image and Logic* (esp. ch. 9)
Bowker and Star, *Sorting Things Out* (esp. ch. 4, 9)

October 16 **Feminist Critiques of Science**

* Haraway, 1988, "Situated Knowledges: The Science Question in Feminism and the Privilege of the Partial Perspective", *Feminist Studies* 14: 575-99.
* Haraway, 1989, *Primate Visions*, chapters 3, 7
* Nelkin and Lindee, 2004, "Creating Natural Distinctions", in *The DNA Mystique: The Gene as a Cultural Icon*: 102-126
* Martin, 1996, "The Egg and The Sperm: How Science Has Constructed a Romance Based on Stereotypical Male-Female Roles", in *Feminism and Science*: 103-20

Fox Keller, 1987, "The Gender/Science System: Or, is Sex to Gender as Nature is to Science?", *Hypatia* 2: 33-44.
Longino, 1989, "Can There Be Feminist Science?", in *Feminism and Science*: 45-57.
Haraway, 1991, "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century", in *Simians, Cyborgs and Women*: 149-81.
Harding, 2001, "Feminist Standpoint Epistemology", in *The Gender and Science Reader*: 145-68.

October 23 **Colonial Science**

* Palladino and Warboys, 1993, "Science and Imperialism", *Isis* 84: 91-102.
* Pyenson, 1993, "Cultural Imperialism and Exact Sciences Revisited", *Isis* 84: 103-8.
* Hart, 1998, "On the Problem of Chinese Science", in *The Science Studies Reader*: 189-201.
* De Laet and Mol, 2000, "The Zimbabwe Bush Pump: Mechanics of a Fluid Technology", *Social Studies of Science* 30: 225-63.
* Sharon Traweek, 1992, "Border Crossings: Narrative Strategies in Science Studies and among Physicists in Tsukuba Science City, Japan", in *Science as Practice and Culture*: 429-65.

Shepherd, 2006, "From In Vitro to In Situ: On the Precarious Extension of Agricultural Science in the Indigenous 'Third World'". *Social Studies of Science* 36: 399-426.
Jones, 1993, "The Tuskegee Syphilis Experiment: 'A Moral Astigmatism'", in *The "Racial" Economy of Science*: 275-86.
Bowker and Leigh Star, 2000, "The Case of Race Classification and Reclassification under Apartheid", in *Sorting Things Out*: 195-225.

October 30 **Managing Scientific Uncertainty**

* Zehr, 1999, "Scientists' Representations of Uncertainty", in *Communicating Uncertainty*: 3-21.
* Price, 1996, "Now You See It, Now You Don't: Mediating Science and Managing Uncertainty in Reproductive Medicine", in *Misunderstanding Science?*: 84-106.
* Edwards, 1996, "Global Climate Science, Uncertainty and Politics: Data-Laden Models, Model-Filtered Data", *Science as Culture* 8: 437-72.
* Stocking and Holstein, 1993, "Constructing and Reconstructing Scientific Ignorance", *Knowledge: Creation, Diffusion, Utilization* 15: 186-210.

Star, 1985, "Scientific Work and Uncertainty", *Social Studies of Science* 15: 391-427.
Smithson, 1993, "Ignorance and Science: Dilemmas, Perspectives, and Prospects", *Knowledge: Creation, Diffusion, Utilization* 15: 133-56.
Shackley and Wynne, 1996, "Representing Uncertainty in Global Change Science Policy: Boundary-Ordering Devices and Authority", *Science, Technology & Human Values* 21: 275–302.

November 6 **Science and/in the Public**

* Hilgartner, 1990, "The Dominant View of Popularization: Conceptual Problems, Political Uses". *Social Studies of Science* 20: 519–39.
* Maranta et al., 2003, "The Reality of Experts and the Imagined Lay Person", *Acta Sociologica* 46: 150-65.
* Epstein, 1995, "The Construction of Lay Expertise: AIDS Activism and the Forging of Credibility in the Reform of Clinical Trials", *Science, Technology & Human Values* 20: 408-37
* Moore, 1996, "Organizing Integrity: American Science and the Creation of Public Interest Organizations, 1955–1975", *AJS* 101:1592–627.
* Collins and Evans, 2002, "The Third Wave of Science Studies: Studies of Expertise and Experience", *Social Studies of Science* 32: 235-96.

November 13 **Beyond the Medical Gaze**

* Hirschauer, 1991, "The Manufacture of Bodies in Surgery", *Social Studies of Science* 21: 279-319.
* Moreira, 2004, "Coordination and Embodiment in the Operating Room", *Body and Society* 10: 109-29.
* Prentice, 2005, "The Anatomy of a Surgical Simulation: The mutual Articulation of Bodies In and Through the Machine", *Social Studies Of Science* 35: 837–866.
* Mol, 2002, *The Body Multiple*, chapter 2, 6

November 20 **Marketing Science**

* Kleinman, 1998, "Untangling Context: Understanding a University Laboratory in the Commercial World", *Science, Technology, & Human Values* 23: 285-314.
* Angell & Relman, 2002, "Patents, Profits & American Medicine: Conflicts of Interest in the Testing & Marketing of New Drugs," *Daedalus* 131: 102-11.
* Owen-Smith, 2006, "Commercial Imbroglios: Proprietary Science and the Contemporary University", in *The New Political Sociology of Science*: 63-90.
* Fishman, 2004, "Manufacturing Desire: The Commodification of Female Sexual Dysfunction", *Social Studies of Science* 34:187-218.
* Healy, 2004, "Shaping the Intimate: Influences on the Experience of Everyday Nerves," Social Studies of Science 34: 219-45.

Ding and Stuart, 2006, "When Do Scientists Become Entrepreneurs? The Social Structural Antecedents of Commercial Activity in the Academic Life Sciences", *AJS* 112: 97-144.
Lakoff, 2004, "The Anxieties of Globalization: Antidepressant Sales and Economic Crisis in Argentina", *Social Studies of Science* 34: 247-69.

November 27 **Science in the Courtroom**

* Wynne, 1989, "Establishing the Rules of Laws: Constructing Expert Authority", in *Expert Evidence*: 23-55.
***** Jasanoff, 2001, "Judicial Fictions: The Supreme Court's Quest for Good Science", *Society* 38: 27-36.
* Jasanoff, 2002, "Science and the Statistical Victim: Modernizing Knowledge in Breast Implant Litigation" *Social Studies of Science* 32 37-70.

* Bal, 2005, "How to Kill with a Ballpoint: Credibility in Dutch Forensic Science", *Science, Technology & Human Values* 30: 52-75.
***** Cole and Lynch, 2006, "The Social and Legal Construction of Suspects", *Annual Review of Law and Social Science* 2: 39-60.

Jasanoff, *Science at the Bar* (esp. ch. 1-5, 10)

December 4 **TBA**

(need to decide on a topic by October 30th)

December 11 **Wrap-up and Paper Presentations**