

**CCTP-726-01**, Fall 2008

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Culture, Communication and Technology

Class: Wed. 2:15-4:05p Car Barn 311 (Conference Room)

Office Hours: Wed.11a-2p Car Barn 311

## **Unpacking Science and Technology**

This course focuses on the lively field of Science and Technology Studies (STS). We will explore contemporary approaches which seek to 'open the black box' by studying the practice and organization of scientists and technologists: we will look at laboratory work as ordinary activity; engineering as world-building; and publics as actors in scientific knowledge production. We will not describe 'science and technology's impact on society,' rather we will look more closely, and see how science and technology are themselves active sites of knowledge production, contestation and practical work.

Credits: 3

Prerequisites: None

## **Expectations**

All students are expected to:

- come to class having finished the assigned readings;
- come to class with questions, argument and viewpoints to contribute to the discussion of those readings;
- participate fully in group discussions, neither dominating nor allowing others to carry the intellectual load;

## **Requirements for all students:**

- A four page double-spaced summary & position paper for each of the four primary texts in this class. The electronic version of this response is due no later than 8 a.m. on the day of the seminar, submitted to the course Blackboard site. Please also bring a printed copy to class.
- Final project. Your final project will be a paper 2500-3500 words in length. The choice of topic is up to you, but all topics must engage with some part of the theories or methods covered in the course. Format is also up to you, and I encourage you to choose whichever format is most useful to you in developing your professional skills. Options include: grant, fellowship, or thesis proposal; bibliographic review essay; or preliminary research paper.
  - This assignment has three parts:
    - 300-500 word proposal, clearly describing your topic and how it relates to course materials and concepts, is due in class on Oct 29<sup>th</sup>. Please submit by email and in hard copy.
    - An introduction and bibliography are due on Nov 19th. They will be returned with comments and suggestions for revisions. Please submit by email and in hard copy.

- The final version, edited, revised, and proofread, is due on Monday, Dec 15<sup>th</sup>. Please submit by email and in hard copy.

### **Evaluation**

Discussion and Participation	10%
Short Papers (4)	40%
Term Paper (3 parts)	50 %

Please note that no late assignments are accepted, unless you have a serious reason.

### **Readings:**

1) There are five required books (primary texts), available at the campus bookstore.

Kuhn, T. S. (1962 [latest edition]). *The Structure of Scientific Revolutions*. Chicago, Chicago University Press.

Shapin, S. and S. Schaffer (1985). *Leviathan and the air-pump: Hobbes, Boyle and the Experimental Life*. Princeton, N.J., Princeton University Press.

Bowker, G. C. and S. L. Star (1999). *Sorting things out: classification and its consequences*. Cambridge, Mass., MIT Press.

Epstein, S. (2007). *Inclusion: The Politics of Difference in Medical Research*. Chicago, University of Chicago Press.

Sismondo, S. (2004). *An Introduction to Science and Technology Studies*. Oxford, Blackwell.

*All other readings will be made available through blackboard or directly from me.*

### **Week One 9.03.08 Introduction**

This course is about careful reading of seminal books. The key to success in this class will be close reading and careful discussion. Read this guide by Paul Edwards to understand how to get the most out of ‘reading a book’:

<http://www.si.umich.edu/~pne/PDF/howtoread.pdf>

### **Week Two 9.10.08 Unpacking Science and Technology**

Langdon Winner, “Do Artefacts have Politics?” (1980) in *The Whale and the Reactor: A Search for Limits in an Age of High Technology* (Chicago: University of Chicago Press, 1986), pp.19-39.

Gieryn, T. F. (1983). "Boundary-Work and the Demarcation of Science From Non-Science: Strains and Interests in Professional Ideologies of Scientists." American Sociological Review **48**(6): 781-795.

Ian Hacking, "Why Ask What?" in *The Social Construction of What?* (Cambridge, MA: Harvard University Press, 1999), pp 1-34.

### **Week Three 9.17.08 Precursors and Foundations**

Robert Merton, "Science and the Social Order" and "The Normative Structure of Science," in *The Sociology of Science* (Chicago: University of Chicago Press, 1973) (org. 1938/1942), pp. 254-78.

Karl Popper, "On the Sources of Knowledge and of Ignorance," and "Truth, Rationality, and the Growth of Scientific Knowledge," in *Conjectures and Refutations* (New York: Routledge, 2005) (org. 1963), pp. 3-39, 291-338.

Sergio Sismondo, *An Introduction to Science and Technology Studies* (Oxford: Blackwell, 2004), Chapter.1,3

### **Week Four 9.24.08 The Kuhnian Revolution**

Kuhn, T. S. (1962) *The Structure of Scientific Revolutions*. Chicago, Chicago University Press. (Read all, including preface and postscript).

Sergio Sismondo, *An Introduction to Science and Technology Studies* (Oxford: Blackwell, 2004), Chapter.2

### Summary & Position Paper 1 Due

### **Week Five 10.01.08 Controversy Studies**

Collins, H. M. (1983). "The Sociology of Scientific Knowledge: Studies of Contemporary Science." Annual Review of Sociology **9**: 265-285.

Fujimura, J. and D. Y. Chou (1994). "Dissent in Science: Styles of Scientific Practice and the Controversy over the Cause of AIDS." Social Science and Medicine **38**: 1017-1036.

Mark Solovey (2001). "Project Camelot and the 1960s Epistemological Revolution: Rethinking the Politics-patronage-social Science Nexus" *Social Studies of Science*, Apr 2001; vol. 31: pp. 171 - 206.

### **Week Six 10.08.08 Sociologies of Scientific Knowledge**

Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump* (Chicago: University of Chicago Press, 1985). (All: Focus on Chapters 1, 2, 6, 8)

David Bloor, "The Strong Programme in the Sociology of Knowledge," in *Knowledge and Social Imagery*, 2nd ed. (Chicago: University of Chicago Press, 1991) (orig. 1976), pp. 3- 23.

Sergio Sismondo, *An Introduction to Science and Technology Studies* (Oxford: Blackwell, 2004), Chapter.5

### Summary & Position Paper 2 Due

### **Week Seven 10.15.08 Unpacking the Laboratory and Technical Work**

Knorr-Cetina, K. (1999). Epistemic Cultures: How the sciences make knowledge. Cambridge, MA, Harvard University Press. (pp.26-46)

Traweek, S. (1992). Beamtimes and lifetimes: the world of high energy physicists. Cambridge, Mass., Harvard University Press. (Prologue, Ch.1-2, 5)

Sergio Sismondo, *An Introduction to Science and Technology Studies* (Oxford: Blackwell, 2004), Chapter.9

### **Week Eight 10.22.08 Counting, Categorizing, and Classification**

Bowker, G. C. and S. L. Star (1999). *Sorting things out: classification and its consequences.* Cambridge, Mass., MIT Press. (All, focus on Chapters Intro, 1-4, 7,8,10)

Sergio Sismondo, *An Introduction to Science and Technology Studies* (Oxford: Blackwell, 2004), Chapter.11-12

### Summary & Position Paper 3 Due

### **Week Nine 10.29.08 Standardization and Infrastructure**

Hanseth, O., E. Monteiro, et al. (1996). "Developing Information Infrastructure: The Tension between Standardization and Flexibility." Science, Technology & Human Values 21(4): 407-426.

O'Connell, J. (1993). "Metrology: 'The Creation of Universality by the Circulation of Particulars'." Social Studies of Science(23): 129-73.

Sarah Igo, *The Averaged American: Surveys, Citizens and the Making of a Mass Public* (Cambridge:Harvard University Press, 2007) (Chapter 6, in Blackboard)

### Paper Proposal Due

### **Week Ten 11.05.08 Visualization and Representation**

Lorraine Daston and Peter Galison, "The Image of Objectivity," *Representations* 40 (1992): 81-128.

Law, J. and M. Lynch (1988). "Lists, field guides, and the descriptive organization of seeing: Birdwatching as an exemplary observational activity." *Human Studies* 11: 267-99.

### **Week Eleven 11.12.08 Boundaries, Exchange, and the Transmission of Knowledge**

Susan Leigh Star and James Griesemer, "Institutional Ecology, 'Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-1939," *Social Studies of Science* 19 (1989): 387-420.

Peter Galison, "The Trading Zone: Coordinating Action and Belief," in *Image and Logic: A Material Culture of Microphysics* (Chicago: University of Chicago Press, 1997), pp. 781- 843.

Sergio Sismondo, *An Introduction to Science and Technology Studies* (Oxford: Blackwell, 2004), Chapter.14

### **Week Twelve 11.19.08 Experts and Publics**

Steven Epstein, "The Construction of Lay Expertise: AIDS Activism and the Forging of Credibility in the Reform of Clinical Trials," *Science, Technology & Human Values* 20 (1995): 408-437

Brian Wynne, "Misunderstood Misunderstandings: Social Identities and the Public Uptake of Science," in Alan Irwin and Brian Wynne, eds., *Misunderstanding Science? The Public Reconstruction of Science and Technology* (Cambridge: Cambridge University Press, 1996), pp. 19-46.

Sergio Sismondo, *An Introduction to Science and Technology Studies* (Oxford: Blackwell, 2004), Chapter.16

### Introduction and Bibliography Due

### **Week Thirteen 11.26.08 Medicine, Research and Policy**

Epstein, S. (2007). *Inclusion: The Politics of Difference in Medical Research*. Chicago, University of Chicago Press. (All, Focus on Chapters 1,3-5,9-11, Conclusion)

### Summary & Position Paper 4 Due

### **Week Fourteen 12.03.08 Science, the Nation and Governance**

Yaron Ezrahi, "Technology and the Civil Epistemology of Democracy," *Inquiry* 35 (1993): 363-76.

Timothy Mitchell, "The Character of Calculability," "The Invention and Reinvention of the Peasant," and "The Object of Development," in *Rule of Experts: Egypt, Techno-Politics, Modernity* (Berkeley: University of California Press, 2002), pp. 80-152 and 209-243.

Final Paper Due Mon. Dec.15.08