

Ph.D. Seminar: Science, Technology, and Medicine in Society

STS 901

Spring 2009

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This course is intended as an advanced level survey of science and technology studies. Science and technology studies is a vast scholarly area. There is no way to even scan its breadth and richness in one semester. For the purposes of this course, I have selected pieces of scholarship that are either prominent in the area or representative of a particular approach. When you have completed the course, you should have a reasonable sense of the kind of work done in the field. For those of you interested in doing additional reading, you will find a list of possible readings for each week of the course plus a list of readings for areas that we won't have time to cover in the course. These lists amount to places to begin deeper reading, but they are by no means comprehensive.

This course will be organized as a seminar. Each student will take responsibility for initiating discussion for one or more class meetings during the semester and will be required to submit a short response paper prior to all but four class meetings. Students will submit one extended paper (approximately 20 double spaced pages) at the end of the semester. This should take the form of some variety of critical engagement with the literature we explore during the term. I leave it entirely to students as to how they proceed with this assignment. I will, however, be available to discuss paper topics, and I am happy to consider alternative assignments (e.g. two or more shorter papers).

Interested students can glean useful senses of recent developments in the field in reviews of the literature and more general discussions found in:

Grint, Keith and Steve Woolgar. 1997. *The Machine at Work: Technology, Work and Organization*. Cambridge, England: Polity Press.

Hackett, Edward, Olga Amsterdamska, Michael Lynch, and Judy Wajcman (eds.). 2008. *The Handbook of Science and Technology Studies*. Third Edition. Cambridge, MA: MIT Press.  
Hess, David. 1997. *Science Studies: An Advanced Introduction*. New York: New York University Press.

Lynch, Michael. 1993. *Scientific Practice and Ordinary Action: Ethnomethodology and Social Studies of Science*. New York: Cambridge University Press.

Sismondo, Sergio. 2004. *An Introduction to Science and Technology Studies*. Malden, MA: Blackwell Publishing.

Ward, Steven C. 1996. *Reconfiguring Truth: Postmodernism, Science Studies, and the Search for a New Model of Knowledge*. New York: Rowman and Littlefield Publishers.

## Requirements

Initiating class discussion once (10% of course grade) (This requirement is negotiable. We might collectively decide to simply have whoever has something to say start discussion or decide that I should initiate discussion every week.)

Weekly comment papers--2 double-spaced typed pages (30% of course grade)

1 essay--15-20 double spaced typed pages (60% of course grade)

**Class Discussion:** This is a seminar course. I will not lecture during the semester; I will, however, moderate discussion and contribute my interpretations and views of the texts we read. Where necessary and appropriate, I will, of course, provide background or context for readings. Generally, however, my sense is that graduate students learn more from talking through arguments—looking for virtues as well as difficulties in texts—than by being lectured at. Each week, students should come to class prepared to make at least one comment about the reading. With luck, this will be an observation that will promote vigorous debate. Unless we decide otherwise collectively, at the beginning of the semester, each student will sign up for one (or more) session(s) for which s/he agrees to get the discussion going.

**Readings:** The books listed on the course schedule and marked with an asterisk are available for purchase at Rainbow Bookstore Cooperative (426 W. Gilman, 257-6050). Virtually all of the required books are on reserve at Helen C. White. I will place the shorter readings on electronic reserve.

**Comment Papers:** These papers are opportunities to probe course reading. Each paper should show that you are seriously grappling with the material; however, how you proceed is entirely up

to you. You might compare readings from a given week with a reading or readings from an earlier week. You might consider how an argument made in a course reading could be applied to your own work. You might assess the reading, suggesting strengths and weaknesses in argument and evidence.

You must write nine of these papers over the course of the semester. Papers should be submitted to the class list (sts901-1-s09@lists.wisc.edu). In order for class participants to read each others comments prior to class, it would be best if these were submitted by Tuesday evening.

**Longer Essay**-As with the comment papers, how you proceed on this assignment is up to you. An original research paper will be appropriate for some of you. Others might prefer to write a paper that critically engages a sampling of the literature on one of the topics we cover during the semester, and still other students may wish to write a polemical essay on a topic related in some fashion to the course. This should be a serious paper, and you should get started on it early. Abstracts with bibliographies, outlines, and drafts should be submitted prior to the final paper. I expect as students proceed with their papers we will find class time to exchange ideas and discuss each other's work.

–Abstracts with bibliographies due: March 4.

–Outlines due: April 8.

–Drafts due: April 22.

–FINAL PAPERS DUE (IN MY BOX): BY 4 P.M. ON MAY 13<sup>TH</sup>. Late papers will not be accepted without prior permission.

## **Schedule**

### **January 21: From the Canon—Merton and the Strong Program**

#### Required Reading

\*Robert K. Merton. 1973. 'The Normative Structure of Science. Pages 267-280 in Robert K. Merton. *The Sociology of Science: Theoretical and Empirical Investigations*. University of Chicago Press.

\*Robert K. Merton. 1973. "The Matthew Effect in Science. Pages 439-459 in Robert K. Merton. *The Sociology of Science: Theoretical and Empirical Investigations*. University of Chicago Press.

\*Robert K. Merton. 1973. "Priorities in Scientific Discovery. Pages 286-324 in Robert K. Merton. *The Sociology of Science: Theoretical and Empirical Investigations*. University of Chicago Press.

\*David Bloor. 1991. *Knowledge and Social Imagery*. 2<sup>nd</sup> Edition. University of Chicago Press. Chapters 1-3.

#### Additional Reading

Joseph Ben-David. 1984 [1971]. *The Scientist's Role in Society*. University of Chicago Press.

Warren Hagstrom. 1965. *The Scientific Community*. Southern Illinois University Press.

Diana Crane. 1972. *Invisible Colleges*. University of Chicago Press. .

Jonathan and Stephen Cole. 1973. *Stratification in Science*. University of Chicago Press.

Barry Barnes. 1977. *Interests and the Growth of Knowledge*. Routledge.

### **January 28: From the Canon—Laboratory Studies**

#### Required Reading

\*Bruno Latour and Steve Woolgar. 1986. *Laboratory Life: The Construction of Scientific Facts*. 2<sup>nd</sup> Edition. Princeton University Press. Pages 15-186, 235-262.

#### Additional Reading

Daniel Lee Kleinman. 1988. "Untangling Context: Understanding a University Laboratory in the Commercial World. *Science, Technology, and Human Values* 23: 3: 285-314.

Knorr Cetina, Karin. 1999. *Epistemic Cultures: How the Sciences Make Knowledge*. Harvard University Press.

Knorr, Karin. 1981. *The Manufacture of Knowledge: An Essay in the Constructivist and Contextual Nature of Science*. Oxford: Pergamon.

Lynch, Michael. 1985. *Art and Artifact in Laboratory Science: A Study of Shop Work and Shop Talk in a Research Laboratory*. Routledge.

Sharon Traweek. 1988. *Beamtimes and Lifetimes*. Harvard University Press.

## **February 4: From the Canon—Actor Network Theory**

### Required Reading

\*Bruno Latour. 1987. *Science in Action*. Harvard University Press. Page 1-178.

### Additional Reading

Callon, Michel. 1986. Some elements of a sociology of translation: domestication of the scallops and the fishermen of St Brieuc Bay. In John Law (ed.), *Power, Action, and Belief: A New Sociology of Knowledge*, Sociological Review Monograph 32. Routledge and Kegan Paul.

Latour, Bruno. 1988. *The Pasteurization of France*. Harvard University Press.

Latour, Bruno. 1983. Give Me a Laboratory and I Will Raise the World. Pages 141-170 in Karin Knorr and Michael Mulkay (eds.), *Science Observed: Perspectives on the Social Study of Science*. Sage.

Law, John and Michel Callon. 1992. The Life and Death of an Aircraft: A Network Analysis of Technological Change. In Weibe Bijker and John Law (eds.), *Shaping Technology, Building Society*. MIT Press.

## **February 11: From the Canon—Social Worlds**

### Required Reading

\*Joan H. Fujimura. 1996. *Crafting Science: A Sociohistory of the Quest for the Genetics of Cancer*. Harvard University Press. At least to page 154.

### Additional Reading

Joan H. Fujimura. 1987. "Constructing 'do-able' Problems in Cancer Research: Articulating Alignment." *Social Studies of Science* 17: 257-293.

Joan H. Fujimura. 1988. "The Molecular Biological Bandwagon in Cancer Research: Where Social Worlds Meet." *Social Problems* 35: 3: 261-283.

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

Adele E. Clarke. 1991. "Social Worlds/ Arenas Theory as Organizational Theory." Pages 119-158 in David Maines (ed.), *Social Organization and Social Process: Essays in Honor of Anselm L. Strauss*. Aldine.

## **February 18: From the Canon—Boundary Work**

### Required Reading

\*Thomas Gieryn. 1999. *Cultural Boundaries of Science: Credibility on the Line*. Chicago. Introduction, chapters 1, 2, and 4.

### Additional Reading

Thomas Gieryn. 1995. "Boundaries of Science." Pages 393-443 in Sheila Jasanoff, Gerald E. Markle, James C. Petersen, and Trevor Pinch. 1995. *Handbook of Science and Technology Studies*. Sage.

Kelly Moore. 1996. "Organizing Integrity: American Science and the Creation of Public Interest Organizations, 1955-1975." *American Journal of Sociology*. 101: 1592-1627.

Daniel Lee Kleinman and Mark Solovey. 1995. "Hot Science/ Cold War: The National Science Foundation after World War II." *Radical History Review* 63: 110-139.

Daniel Lee Kleinman and Abby J. Kinchy. 2003. "Boundaries in Science Policy Making: Bovine Growth Hormone in the European Union." *Sociological Quarterly*. 44:4: 577-596.

## **February 25: At the Edge of the Canon—Feminism, Gender, and Technoscience**

### Required Reading

Haraway, Donna. 1991 [1988]. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." Pages 183-202 in *Simians, Cyborgs, and Women: The Reinvention of Nature*. Routledge.

Harding, Sandra. 1986. *The Science Question in Feminism*. Ithaca, NY: Cornell University Press. Chapter 1.

Fox Keller, Evelyn. 1995. "The Origin, History, and Politics of the Subject Called 'Gender in Science': A First Person Account." In Sheila Jasanoff, et al. (eds.). *The Handbook of Science and Technology Studies*. Thousand Oaks, CA: Sage.

Fox, Mary Frank. "Gender, Family Characteristics, and Publication Productivity among Scientists." *Social Studies of Science* 35:1: 131-150.

### Additional Reading

Haraway, Donna. 1991 [1985]. "A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism." Pages 149-182 in *Simians, Cyborgs, and Women: The Reinvention of Nature*. Routledge.

Sandra Harding. 1991. *Whose Science? Whose Knowledge? Thinking from Womens Lives*. Cornell University Press.

Ruth Schwartz Cowan. 1983. *More Work for Mother: The Ironies of Household Technology from the Hearth to the Microwave*. Basic Books. Read at least through chapter five.

Ruth Bleier. 1986. *Feminist Approaches to Science*. Pergamon.

Evelyn Fox Keller. 1985. *Reflections on Gender and Science*. Yale.

Helen Longino. 1990. *Science as Social Knowledge*. Princeton.

Carolyn Merchant. 1980. *The Death of Nature*. Harper and Row.

Hilary Rose. 1994. *Love, Power, and Knowledge: Towards a Feminist Transformation of the Sciences*. Polity.

Maralee Mayberry, Banu Subramanian, and Lisa Weasel (eds.). 2001. *Feminist Science Studies*. New York: Routledge.

Muriel Lederman and Ingrid Bartsch (eds.). 2001. *The Gender and Science Reader*. New York: Routledge.

### **March 4: At the Edge of the Canon—Where Science and Government Meet**

#### Required Reading

Sheila Jasanoff. 1994. *The Fifth Branch: Science Advisors as Policymakers*. Cambridge, MA: Harvard University Press. Pages 1-40.

Mark R. Brown. 2006. "Ethics, Politics, and the Public: Shaping the Research Agenda." Pages 10-32 in David H. Guston and Daniel Sarewitz (eds.), *Shaping Science and Technology Policy: The Next Generation of Research*. Madison, WI: University of Wisconsin Press.

David H. Guston. 1999. "Stabilizing the Boundary between US Politics and Science: The Role of the Office of Technology Transfer as a Boundary Organization," *Social Studies of Science* 29:1: 87-111.

Shobita Parthasarathy. 2007. *Building Genetic Medicine: Breast Cancer, Technology, and the Comparative Politics of Health*. Cambridge, MA: MIT Press. Pages 1-25.

### Additional Reading

Herbert Gottweis. 1998. *Governing Molecules: The Discursive Politics of Genetic Engineering in Europe and the United States*. Cambridge, MA: MIT Press.

David H. Guston and Daniel Sarewitz (eds.). 2006. *Shaping Science and Technology Policy: The Next Generation of Research*. Madison, WI: University of Wisconsin Press.

Sheila Jasanoff. 2005. *Designs on Nature: Science and Democracy in Europe and the United States*. Princeton, NJ: Princeton University Press.

Daniel Lee Kleinman. 1995. *Politics on the Endless Frontier: Postwar Research Policy in the United States*. Durham, NC: Duke University Press.

Daniel Lee Kleinman and Abby J. Kinchy. 2003. "Why Ban Bovine Growth Hormone?: Science, Social Welfare, and the Divergent Biotech Policy Landscapes in Europe and the United States." *Science as Culture* 12 (3): 375-414.

Susan Wright. 1994. *Molecular Politics: Developing American and British Regulatory Policy for Genetic Engineering, 1972-1982*. Chicago: University of Chicago Press. Pages xx-yy.

## **March 11: Outside the Canon—Science and the Public**

### Required Reading

Dietram Scheufele. "Messages and Heuristics: How Audiences Form Attitudes about Emerging Technologies." *Engaging Science: Thoughts, Deeds, Analysis, and Action*

Dominique Brossard, Dietram A. Scheufele, Eunkyung Kim, and Bruce V. Lewenstein. 2008. "Religiosity as a Perceptual Filter: Examining Processes of Opinion Formation about Nanotechnology." *Public Understanding of Science*. On line

John Rudolph. 2005. "Epistemology for the masses: The origins of 'the scientific method' in American schools." *History of Education Quarterly*, 45 (2), 341-376.

Steven Epstein. 2000. "Democracy, Expertise, and AIDS Treatment Activism." Pages 15-32 in Daniel Lee Kleinman (ed.). *Science, Technology, and Democracy*. Albany, NY: SUNY University Press.

Brian Wynne. 1992. "Misunderstood Misunderstandings: Social Identities and Public Uptake of Science." *Public Understanding of Science* 1:3: 281-304.

### Additional Reading

Daniel Lee Kleinman (ed.). *Science, Technology, and Democracy*. Albany, NY: SUNY University Press.

Rudolph, John. 2000. "Reconsidering the Nature of Science as a Curriculum Component."  
*Journal of Curriculum Studies* 32: 403-419.

March 18—Spring Break

### **March 25: After the Canon—Toward a New Political Sociology of Science**

#### Required Reading

\*Daniel Lee Kleinman. 2003. *Impure Cultures: University Biology and the World of Commerce*. Madison, WI University of Wisconsin Press. Pages 3-137.

#### Additional Reading

Scott Frickel. 2004. *Chemical Consequences: Environmental Mutagens, Scientist Activism, and the Rise of Genetic Toxicology*. New Brunswick, NJ: Rutgers University Press.

David Hess. 2007. *Alternative Pathways in Science and Industry*. Cambridge, MA: MIT Press.

Kelly Moore. 2007. *Disrupting Science: Social Movements, American Scientists, and the Politics of the Military, 1945-1975*. Princeton, NJ: Princeton University Press.

### **April 1: After the Canon—Toward a New Political Sociology of Science**

#### Required Reading

\*Scott Frickel and Kelly Moore. 2006. "Prospects and Challenges for a New Political Sociology of Science." Pages 3-34 in Scott Frickel and Kelly Moore (eds.), *The New Political Sociology of Science*. Madison, WI : University of Wisconsin Press.\*

\*David Hess. 2006. "Antiangiogenesis Research and the Dynamics of Scientific Fields: Historical and Institutional Perspectives in the Sociology of Science." In Frickel and Moore, pages 122-147.

\*Maren Klawiter. 2006. "Regulatory Shifts, Pharmaceutical Scripts, and the New Consumption Junction: Configuring High Risk Women in an Era of Chemoprevention." In Frickel and Moore, pages 432-460.

\*Scott Frickel. 2006. "When Convention Becomes Contentious: Organizing Activism in Genetic Toxicology" In Frickel and Moore, pages 185-214.

\*Kelly Moore. 2006. "Powered by the People: Scientific Authority in Participatory Science." In Frickel and Moore, pages 299-323.

## **April 8: After the Canon—(Post) Colonial Studies**

### Required Reading

\*Sandra Harding. 2008. *Science from Below: Feminisms, Postcolonialities and Modernities*. Durham, NC: Duke University Press. Pages 1-48, 101-172.

### Additional Reading

Sandra Harding. 1998. *Is Science Multi-Cultural? Postcolonialisms, Feminisms, and Epistemologies*. Indiana University Press.

Zaheer Baber. 1996. *The Science of Empire: Scientific Knowledge, Civilization, and Colonial Rule*. SUNY Press.

Vandana Shiva. 1989. *Staying Alive: Women, Ecology, and Development in India*. London: Zed Books.

## **April 15: After the Canon: Science, Technology, and Race**

### Required Reading

\*Steve Epstein. 2007. *Inclusion: The Politics of Medical Research*. Chicago: University of Chicago Press. Read to at least page 232.

### Additional Reading

Donna Haraway. 1996. "Race: Universal Donors in a Vampire Culture." In *Modest-Witness @Second-Millennium.FemaleMad-Meets-Oncomouse: Feminism and Technoscience*. Durham, NC: Duke University Press.

Troy Duster. 2003. "Buried Alive: The Concept of Race in Science." In Goodman, Heath, and Lindee (eds.), *Genetic Nature/Culture: Anthropology and Science Beyond the Two Culture Divide*. Berkeley: University of California Press.

Robert Bullard. 1994. *Dumping in Dixie: Race, Class, and Environmental Quality*. Westview.

Sandra Harding (ed.). 1993. *The 'Racial' Economy of Science: Toward a Democratic Future*. Indiana University Press.

Willie Pearson, Jr. 1978. "Race and Universalism in the Scientific Community." Pages 38-53 in Jerry Gaston (ed.), *Sociology of Science*. Jossey-Bass Publishers.

## **April 22: After the Canon: Foucauldian Approaches**

### Required Reading

\*Nikolas Rose. 2008. *The Politics of Life Itself: Biomedicine, Power, and Subjectivity in the Twenty-First Century*. Princeton, NJ: Princeton University Press. At least pages 1-155.

Samer Alatout. 2006. "Towards a bio-territorial conception of power: Territory, population, and environmental narratives in Palestine and Israel." *Political Geography* 25: 601-621.

## **April 29: After the Canon: New Voices**

### Required Reading

\*Libby Schweber. 2006. *Disciplining Statistics: Demography and Vital Statistics in France and England, 1830-1885*. Durham, NC: Duke University Press. Pages 1-176 and 213-226.

### Additional Reading

Michelle Murphy. 2006. *Sick Building Syndrome and the Problem of Uncertainty*. Durham, NC: Duke University Press..

Joseph Masco. 2006. *The Nuclear Borderlands: The Manhattan Project in Post-Cold War New Mexico*. Princeton, NJ: Princeton University Press.

## **May 6: Views from the Holtz Center**

Professor Linda Hogle, Department of Medical History and Bioethics. Former Director of the Holtz Center for Science and Technology Studies.

Professor Greg Downey, Department of Journalism and Mass Communications and School of Library and Information Studies. Current member of the Holtz Center Steering Committee.

NOTE: Each visitor will provide us with a piece of her/ his writing in advance of this meeting.

## **May 13: Papers Due**

### Still More Additional Reading Possibilities

#### **Stratification and Discrimination in Science**

Diana Crane. 1972. *Invisible Colleges*. University of Chicago Press.

Mary Frank Fox. 1999. "Gender, Hierarchy, and Science." Pages 441-457 in Jane Saltzman Chafetz (ed.), *Handbook of the Sociology of Gender*. Kluwer Academic/ Plenum Publishers.

Jonathan and Stephen Cole. 1973. *Stratification in Science*. University of Chicago Press.

#### **The Empirical Program of Relativism (The Bath School)**

Harry Collins. 1983. "An Empirical Relativist Programme in the Sociology of Scientific Knowledge." Pages 85-115 in Karin Knorr Cetina and Michael Mulkay (eds.), *Science Observed*. Sage.

Harry Collins. 1985. *Changing Order: Replication and Induction in Scientific Practice*. Sage.

#### **Interests Analysis (The Edinburgh School)**

Barry Barnes and Donald MacKenzie. 1979. "On the Role of Interests in Scientific Change." Pages 49-66 in Roy Wallis (ed.), *On the Margins of Science*. Sociological Review Monograph No. 27. University of Keele.

Donald MacKenzie. 1983. *Statistics in Britain*. University of Edinburgh Press. Conflict Approaches (10/16/00)

#### **Conflict Approaches**

Pierre Bourdieu. 1975. "The Specificity of the Scientific Field and the Social Conditions for the Progress of Reason." *Social Science Information* 14:5: 19-47.

Randall Collins. 1983. "Robber Barons and Politicians in Mathematics: A Conflict Model." *The Canadian Journal of Sociology* 8:2: 199-227.

Pierre Bourdieu. 1991. "The Peculiar History of Scientific Reason." *Sociological Forum* 6:1: 3-26.

Randall Collins. 1975. *Conflict Sociology*. Academic Press.

Restivo, Sal. 1988. "Modern Science as a Social Problem." *Social Problems* 35:3: 206-225.