

STS.260: Introduction to Science, Technology, and Society

Fall 2010

Wednesdays 10-1

E51-275

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Description

This seminar prepares students for graduate work in historical and social studies of science and technology. Through intensive reading and analysis of classic and recent works in the field, students will hone their ability to discern the disciplinary, theoretical, and methodological approaches underlying a given argument and to articulate its strengths and weaknesses in relation to a broader body of literature. The course is open to graduate students and advanced undergraduates from any field who are interested in the material.

Requirements

Attendance and active participation: Share responsibility for presenting the key arguments and relations of each week's readings.

Weekly reading synopses: Prepare a 500-750 word synopsis of the week's reading, identifying arguments, methods, common themes, oppositions, and any other issues worthy of further consideration. Submit these by 9pm on Tuesdays.

Final Paper: Submit a 3000-4000 word discussion of work on a specific topic, or of an author's writing over a career.

Grading

1/3 discussion participation
1/3 weekly reading synopses
1/3 final paper

Books to Buy:

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

Shapin, Steven, and Simon Schaeffer. 1985. *Leviathan and the Air-Pump: Hobbes, Boyle and the Experimental Life*. Princeton: Princeton University Press.

Latour, Bruno, and Steve Woolgar. 1979. *Laboratory Life: The Construction of Scientific Facts*, 2nd. ed. Princeton: Princeton University Press, 1986.

Mol, Anne-Marie. 2002. *The Body Multiple: Ontology in Medical Practice*. Durham: Duke University Press.

Schedule

8 September	Introduction
15 September	Classic Approaches
22 September	SSK and the Strong Programme
29 September	Rewriting Histories of Early Science
6 October	Social Construction of Scientific Facts
13 October	Actor Network Theory
20 October	The Turn to Technology
27 October	SCOT and Beyond
3 November	Science as Practice
10 November	Feminist Perspectives
17 November	Biotechnology
24 November	Global Technoscience
1 December	Risk
8 December	Expertise

9.08 Introduction and Course Mechanics

9.15 Classic Approaches in Philosophy and History of Science

Popper, Karl. 1934. *The Logic of Scientific Discovery*. Excerpts ("Scientific Method," "Falsification versus Conventionalism." In *The Philosophy of Science*, ed. R. Boyd, P. Gasper, and J.D. Trout. Cambridge: MIT Press, 1991. pp. 99-122.

Fleck, Ludwig. 1935. Epistemological conclusions from the established history of a concept. In *Genesis and Development of a Scientific Fact*. Chicago: University of Chicago Press, 1981. pp. xxvii-xxviii, 1-51.

Merton, Robert K. The ethos of science (1942), The reward system of science (1957), and The Matthew Effect, II (1988). In *On Social Structure and Science* ed. P. Sztompka. Chicago: University of Chicago Press, 1996. pp. 267-276, 286-304, 318-336.

Kuhn, Thomas. 1962. The nature and necessity of scientific revolutions. In *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press. pp. 92-110.

Feyerabend, Paul. 1975. *Against Method: Outline of an Anarchistic Theory of Knowledge*. New York: Verso, 1978. pp. vii-xiii, 1-13.

9.22 The Strong Programme in the Sociology of Knowledge (SSK)

Bloor, David. 1976. The Strong Programme in the sociology of knowledge. In *Knowledge and Social Imagery*, 2nd ed. Chicago: University of Chicago Press, 1991. pp. 3-23.

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

Shapin, Steven. 1979. The politics of observation: cerebral anatomy and social interests in the Edinburgh phrenology disputes. In *On the Margins of Science: The Social Construction of Rejected Knowledge*, ed. R. Wallis. Keele: Keele University Press. pp. 139-178.

9.29 Rewriting Histories of Early Science

Shapin, Steven, and Simon Schaffer. 1985. *Leviathan and the Air-Pump: Hobbes, Boyle and the Experimental Life*. Princeton: Princeton University Press.

Shapiro, Barbara. 2000. *A Culture of Fact: England, 1550-1720*. Cornell: Cornell University Press. pp. 1-33, 105-167.

Biagioli. Mario. 1990. Galileo the emblem maker. *Isis* 81: 230-258.

10.6 Laboratory Studies: Social Construction of Scientific Facts

Galison, Peter. 1987. *How Experiments End*. Chicago: University of Chicago Press. pp. 1-71.

Latour, Bruno, and Steve Woolgar. 1979. *Laboratory Life: The Construction of Scientific Facts*, 2nd. ed. Princeton: Princeton University Press, 1986.

Knorr-Cetina, Karin. 1995. Laboratory studies: The cultural approach to the study of science. In *Handbook of Science & Technology Studies*, ed. S. Jasanoff, D.E. Markle, J.C. Peterson, and T.J. Pinch. London: Sage. pp. 165-180.

Hacking, Ian. 1999. *Social Construction of What?* Cambridge: Harvard University Press. pp. 1-35, 125-162.

10.13 Rethinking Agency: Actor Network Theory (ANT)

Latour, Bruno. 1983. Give me a laboratory and I will raise the world. In *Science Observed: Perspectives on the Social Study of Science*, ed. K.D. Knorr-Cetina and M. Mulkay. London: Sage. pp.141-170.

Callon, Michel. 1986. Some elements of a sociology of translation: Domestication of the scallops and the fishermen of St. Brieuc Bay. In *Power, Action, and Belief: A New Sociology of Knowledge*, ed. J. Law. London: Routledge. pp. 196-233.

John Law. 1986. On the methods of long-distance control: Vessels, navigation and the Portuguese route to India. In *Power, Action and Belief*. pp. 234-263.

Collins, H.M. and Steve Yearley. 1992. Epistemological chicken. In *Science as Practice and Culture*, ed. A. Pickering. Chicago: University of Chicago Press. pp. 301-326.

Latour, Bruno, and Michel Callon. 1992. Don't throw the baby out with the Bath School! A reply to Collins and Yearly. In *Science as Practice and Culture*. pp. 343-368.

Pickering, Andrew. 1993. The mangle of practice: Agency and emergence in the sociology of science. *American Journal of Sociology* 99: 559-589.

10.20 The Turn to Technology

Smith, Merritt Roe. 1994. Technological determinism in American culture. In *Does Technology Drive History*, ed. M.R. Smith and L. Marx. Cambridge: MIT Press. pp. 1-35.

Pinch, Trevor, and Wiebe Bijker. 1984. The social construction of facts and artifacts: Or, how the sociology of science and the sociology of technology might benefit each other. *Social Studies of Science* 14: 399-441.

Winner, Langdon. 1986. Do artifacts have politics? In *The Whale and the Reactor: A Search for Limits in an Age of High Technology*. Chicago: University of Chicago Press. pp. 19-39.

Hughes, Thomas P. 1987. The evolution of large technological systems. In *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, ed. W.E. Bijker, T.P. Hughes, and T.J. Pinch. Cambridge: MIT Press, 1999. pp. 51-82.

MacKenzie, Donald. 1999. Missile accuracy: A case study in the social processes of technological change. In *The Social Construction of Technological Systems*. pp. 195-222.

10.27 Social Construction of Technology (SCOT) and Beyond

Woolgar, Steve. 1991. The turn to technology in Social Studies of Science. *Science, Technology & Human Values* 16: 20-50.

Winner, Langdon. 1993. Upon opening the black box and finding it empty: Social constructivism and the philosophy of technology. *Science Technology and Human Values* 18: 362-378.

Wyatt, Sally. 2008. Technological determinism is dead; Long live technological determinism. In *The Handbook of Science and Technology Studies*, 3rd ed., ed.

E.J. Hackett, O. Amsterdamska, M. Lynch, and J. Wajcman. Cambridge: MIT Press. pp. 165-180.

Akrich, Madeline. 1992. The de-scription of technical objects. In *Shaping Technology / Building Society*, ed. W. Bijker and J. Law. Cambridge: MIT Press. pp. 205-224.

Latour, Bruno. 1992. Where are the missing masses? The sociology of a few mundane artifacts. In *Shaping technology / Building Society*. pp. 225-258.

Bijker, Wiebe. 1993. Do not despair: There is life after constructivism. *Science Technology and Human Values* 18: 113-138.

11.03 Science as Practice: Objectivity, Visualization, Representation

Lynch, Michael. 1985. Discipline and the material form of images: An analysis of scientific visibility. *Social Studies of Science* 15: 37-66.

Daston, Lorraine, and Peter Galison. 2007. *Objectivity*. Cambridge: Zone Books. pp. 9-53, 371.

Kaiser, David. 2000. Stick-figure realism: Conventions, reification, and the persistence of Feynman Diagrams, 1948-1964. *Representations* 70: 49-86.

Bruno Latour. 1986. Visualization and cognition: Thinking with eyes and hands. *Knowledge & Society* 6: 1-40.

Galison, Peter. 1997. Trading zone: Coordinating action and belief. In *The Science Studies Reader*, ed. M. Biagioli. London: Routledge, 1999. pp. 137-160.

Mol, Anne-Marie. 2002. *The Body Multiple: Ontology in Medical Practice*. Durham: Duke University Press. pp. 1-86, 151-184.

Law, John, and Lynch, Michael. 1988. Lists, field guides, and the descriptive organization of seeing: Birdwatching as an exemplary observational activity. *Human Studies* 11: 271-303.

11.10 Feminist Perspectives

Keller, Evelyn Fox. 1985. Baconian science: The arts of mastery and obedience. In *Reflections on Gender and Science*. New Haven: Yale University Press. pp. 33-42.

Keller, Evelyn Fox. 1992. Gender and science: An update. In *Secrets of Life / Secrets of Death: Essays on Language, Gender, and Science*. New York: Routledge. pp. 15-36.

Harding, Sandra. 1991. What is feminist epistemology. In *Whose Knowledge? Whose Science? Thinking from Women's Lives*. Ithaca: Cornell University Press.

Haraway, Donna. 1991. Situated knowledges: The science question in feminism and the privilege of partial perspective. In *Simians, Cyborgs, and Women: The Reinvention of Nature*. New York: Routledge. pp. 183-202.

Sismondo, Sergio. 1995. The scientific domains of feminist standpoints. *Perspectives on Science* 3: 49-65.

Barad, Karen. 1999. Agential realism: Feminist interventions in understanding scientific practices. In *The Science Studies Reader*, ed. M. Biagioli. London: Routledge, 1999. pp. 1-11.

Pursell, Carroll. 2001. Feminism and the rethinking of the history of technology. In *Feminism in Twentieth-Century Science, Technology, and Medicine*, ed. A. Creager, E. Lunbeck, and L. Schiebinger. Chicago: University of Chicago Press. pp. 113-127.

11.17 Biotechnological Reconfigurations of Kinship

Haraway, Donna. 1995. Universal donors in a vampire culture, or it's all in the family: Biological kinship categories in the twentieth-century United States. In *Uncommon Ground: Toward Reinventing Nature*, ed. W. Cronon. New York: Norton. pp. 321-366.

Thompson, Charis. 2001. Strategic naturalizing: Kinship in an infertility clinic. In *Relative Values: Reconfiguring Kinship Studies*, ed. S. Franklin and S. McKinnon. Durham: Duke University Press. pp. 175-202.

Franklin, Sarah. 2007. Sex. In *Dolly Mixtures: The Remaking of Genealogy*. Durham: Duke University Press. pp. 19-45.

Helmreich, Stefan. 2003. Trees and seas of Information: Alien kinship and biopolitics of gene transfer in marine biology and biotechnology. *American Ethnologist* 30: 340-358.

11.24 Global Technoscience

Anderson, Warwick, and Vincanne Adams. 2008. Pramoedya's chickens: Postcolonial studies of technoscience. In *The Handbook of Science and Technology Studies*, 3rd ed., ed. E.J. Hackett, O. Amsterdamska, M. Lynch, and J. Wajcman. Cambridge: MIT Press. pp. 181-204.

Grove, Richard. 1995. Indigenous knowledge and the significance of southwest India for Portuguese and Dutch constructions of tropical nature. In *Green Imperialism*. New York: Oxford University Press. pp. 73-94.

Hayden, Cori. 2003. From market to market: Bioprospecting's idioms of inclusion. *American Ethnologist* 30: 359-371.

Fischer, Michael M.J. 2001. In the science zone: The Yanomami and the fight for representation. *Anthropology Today* 17(4): 9-14, and 17(5): 16-19.

Petryna, Adriana. 2005. Ethical variability: Drug development and globalizing clinical trials. *American Ethnologist* 32: 183-197.

Mavhunga, Clapperton. forthcoming. A plundering tiger with its deadly cubs? The USSR and China in the engineering of a 'Zimbabwean Nation,' 1945-2009. In *The Technopolitical Shape of Cold War Geographies*, ed. G. Hecht. Cambridge: MIT Press.

Traweek, Sharon. 2005. Generating high-energy physics in Japan: Moral imperatives of a future pluperfect. In *Pedagogy and the Practice of Science: Historical and Contemporary Perspectives*, ed. D. Kaiser. Cambridge: MIT Press. pp. 357-392.

12.1 Risk

Castel, Robert. 1991. From dangerousness to risk. In *The Foucault Effect: Studies in Governmentality*, ed. G. Burchell, C. Gordon, and P. Miller. pp. 281-298.

Beck, Ulrich. 1986. *Risk Society: Towards a New Modernity*, trans. M. Ritter. London: Sage, 1992. pp. 9-16.

Beck, Ulrich. 1999. *Risk Society* revisited: Theory, politics, critiques, and research programmes. In *World Risk Society*. Cambridge: Polity Press. pp. 133-152.

Giddens, Anthony. 1991. Fate, risk and security. In *Modernity and Self-Identity: Self and Society in the Late Modern Age*. Stanford: Stanford University Press. pp. 109-142.

Jasanoff, Sheila. 1994. Introduction. In *Learning from Disaster: Risk Management After Bhopal*, ed. S. Jasanoff. Philadelphia: University of Pennsylvania Press. pp. 1-21.

Jasanoff, Sheila. 1999. The songlines of risk. *Environmental Values* 8: 135-152.

Lakoff, Andrew. 2007. Preparing for the next emergency. *Public Culture* (Special Issue: The Social Life of Risk) 19: 247-271.

12.8 Expertise

Wynne, Brian. 1996. May the sheep safely graze? A reflexive view of the expert-lay knowledge divide. In *Risk, Environment and Modernity: Towards a New Ecology*, ed. S. Lash, B. Szerzynski, and B. Wynne. London: Sage. pp. 45-83.

Collins, H.M., and Robert Evans. 2002. The Third Wave of science studies: Studies of expertise and experience. *Social Studies of Science* 32: 235-296.

Jasanoff, Sheila. 2003. Breaking the waves in science studies: Comment on H.M. Collins and Robert Evans 'The Third Wave of Science Studies.' *Social Studies of Science* 33: 389-400.

Wynne, Brian. 2003. Seasick on the Third Wave? Subverting the hegemony of propositionalism. *Social Studies of Science* 33: 401-417.

Rip, Arie. 2003. Constructing expertise: In a Third Wave of science studies? *Social Studies of Science* 33: 419-434.

Collins, Harry, and Robert Evans. 2003. King Canute meets the Beach Boys: Responses to the Third Wave. *Social Studies of Science* 33: 435-452.