

SOCGEN 188 | History 191i/201o

## **Current Directions in the Social and Historical Study of Science and Technology**

Winter 2010, UCLA

Tuesdays 9-12am

History 191i/201o  
Norton Wise  
5272 Bunche Hall  
nortonw@history.ucla.edu

SocGen 188  
Christopher M. Kelty  
Rolfe Hall 1315  
ckelty@ucla.edu

### **Introduction**

This class is an advanced introduction to the field of Historical, Philosophical and Social Studies of Science, also known as "Science Studies." It includes approaches primarily from anthropology and history, but issues that are common to multiple disciplines. A key focus of the class is on **method**. How does one investigate complex technical and scientific objects using the tools and vocabulary of the interpretive human sciences? Readings in the course cover issues from the 17<sup>th</sup> century to the present. Some questions we will ask include: can historical and anthropological methods be combined, and how? How does one design a research project to illuminate the workings of science and technology? Which archives, sites, people, institutions, technologies, or rationalities constitute good objects for study? How does this work contribute to, critique, rethink or participate in the development of science and technology today? What does the book/monograph offer that other modes of presentation cannot?

### **Prerequisites**

This course assumes at least a basic familiarity with historical or social science research, and good reading skills. We will read at least one book per week. We will begin with the controversies which the field has engendered over the last 25 years but will not dwell on them at length. Previous experience with discussion-intensive seminars, weekly reading responses and summaries will be very helpful.

### **Requirements**

1. Reading and participation: 20%
2. Weekly reading-responses (1500-2500 words): 40%
3. A review essay in which three works from the class, books and/or articles, are explored with respect to questions of method, including a review of relevant background literature, or annotated bibliography; due at the end of quarter: 40%

### **Course Website**

### **Required Texts**

Warwick Anderson, *The Collectors of Lost Souls: Turning Kuru Scientists into Whitemen* (Baltimore: Johns Hopkins University Press, 2008).

- Mario Biagioli, *Galileo's Instruments of Credit: Telescopes, Images, Secrecy* (University Of Chicago Press, 2007).
- Deborah R. Coen, *Vienna in the age of uncertainty* (University of Chicago Press, 2007).
- Susan Greenhalgh, *Just One Child: Science and Policy in Deng's China*, 1st ed. (University of California Press, 2008).
- Deborah E Harkness, *The Jewel House: Elizabethan London and the Scientific Revolution* (New Haven: Yale University Press, 2007).
- Matthew L. Jones, *The Good Life in the Scientific Revolution: Descartes, Pascal, Leibniz, and the Cultivation of Virtue* (University Of Chicago Press, 2006).
- Christopher M. Kelty, *Two Bits: The Cultural Significance of Free Software* (Duke University Press, 2008).
- Robert E Kohler, *Lords of the Fly: Drosophila Genetics and the Experimental Life* (Chicago: University of Chicago Press, 1994).
- Hannah Landecker, *Culturing Life: How Cells Became Technologies* (Harvard University Press, 2007).
- Alex Preda, *Framing Finance: The Boundaries of Markets and Modern Capitalism* (Chicago: University of Chicago Press, 2009).'
- Steven Shapin, *The Scientific Life: A Moral History of a Late Modern Vocation* (University Of Chicago Press, 2008).
- Sergio Sismondo, *An Introduction to Science and Technology Studies* (Wiley-Blackwell, 2003).

Detailed Schedule

**5 January. Introduction—Readings To Be Completed Before The First Class Meeting**

Sergio Sismondo, *An Introduction to Science and Technology Studies* (Wiley-Blackwell, 2003).

**Each student will present on one chapter during class. Pick from:** paradigm and normal science (2), mertonian norms (3), strong programme (5), social construction (6), actor-network theory (7), tacit knowledge and experimenter's regress (8), controversies (10), ethnomethodology, formal rules (12), situated knowledges (13), expertise (16)

**12 January. Histories of the Present?**

Hannah Landecker, *Culturing Life: How Cells Became Technologies* (Harvard University Press, 2007).

**19 January. Ethnographic Histories?**

Deborah E Harkness, *The Jewel House: Elizabethan London and the Scientific Revolution* (New Haven: Yale University Press, 2007).

Matthew L. Jones, *The Good Life in the Scientific Revolution: Descartes, Pascal, Leibniz, and the Cultivation of Virtue* (University Of Chicago Press, 2006). **Introduction**

Comaroff, Ethnography and the Historical Imagination.

**26 January. Mathematics, Practice, Virtue and Technology in the 17th Century** (Kelty Absent)

Mario Biagioli, *Galileo's Instruments of Credit: Telescopes, Images, Secrecy* (University Of Chicago Press, 2007).

Matthew L. Jones, *The Good Life in the Scientific Revolution: Descartes, Pascal, Leibniz, and the Cultivation of Virtue* (University Of Chicago Press, 2006). **Chapter on Descartes.**

**2 February. Technoscientific Communities, for instance Flies and Geeks**

Robert E Kohler, *Lords of the Fly: Drosophila Genetics and the Experimental Life* (Chicago: University of Chicago Press, 1994).

Christopher M. Kelty, *Two Bits: The Cultural Significance of Free Software* (Duke University Press, 2008). **Chapters 1,3, 6 and 7.**

**9 February. Uncertainty. For instance, about the Weather**

Deborah R. Coen, *Vienna in the age of uncertainty* (University of Chicago Press, 2007).

**16 February. Science as a Vocation in the 19th and 20th centuries**

Steven Shapin, *The Scientific Life: A Moral History of a Late Modern Vocation* (University Of Chicago Press, 2008).

Paul Rabinow, *Making PCR: A Story of Biotechnology* (University Of Chicago Press, 1997).**Selections.**

Max Weber et al., *The Vocation Lectures: Science As a Vocation, Politics As a Vocation* (Hackett Publishing Company, 2004).

**23 February. Unlikely Connections. Such as Missiles and Babies**

Susan Greenhalgh, *Just One Child: Science and Policy in Deng's China*, 1st ed. (University of California Press, 2008).

**2 March. STS and the Last Crisis. Finance as object.**

Alex Preda, *Framing Finance: The Boundaries of Markets and Modern Capitalism* (Chicago: University of Chicago Press, 2009).

**9 March. Post-Disciplinary, Post-Colonial, Post-STs?.**

Warwick Anderson, *The Collectors of Lost Souls: Turning Kuru Scientists into Whitemen* (Baltimore: Johns Hopkins University Press, 2008).

Lorraine Daston, "Science Studies and the History of Science," *Critical Inquiry* 35, no. 4 (January 1, 2009): 798-813.

Michael M. J. Fischer, "Four Genealogies For a Recombinant Anthropology of Science and Technology," *Cultural Anthropology* 22, no. 4 (2007): 539-615.

**Selected Background and Additional Readings**

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

- Barry Barnes, David Bloor, and John Henry, *Scientific Knowledge*, 1996.
- Ulrich Beck, *Risk Society: Towards a New Modernity*, 1st ed. (Sage Publications Ltd, 1992).
- Mario Biagioli, *Galileo, Courtier: The Practice of Science in the Culture of Absolutism* (University Of Chicago Press, 1994).
- Mario Biagioli, *The Science Studies Reader*, 1st ed. (Routledge, 1999).
- Wiebe E. Bijker, *Of Bicycles, Bakelites, and Bulbs: Toward a Theory of Sociotechnical Change* (The MIT Press, 1997).
- Wiebe Bijker, Thomas P. Hughes, and Trevor Pinch, *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology* (The MIT Press, 1989).
- David Bloor, *Knowledge and Social Imagery*, 1991.
- Geoffrey C. Bowker and Susan Leigh Star, *Sorting Things Out: Classification and Its Consequences* (The MIT Press, 2000).
- Michel Callon, *The Laws of the Markets* (Blackwell Publishers, 1998).
- Karin Knorr Cetina, *Epistemic Cultures: How the Sciences Make Knowledge* (Harvard University Press, 1999).
- H. M. Collins, "The TEA Set: Tacit Knowledge and Scientific Networks," *Science Studies* 4, no. 2 (April 1974): 165-185.
- Harry Collins and Robert Evans, *Rethinking Expertise*, 1st ed. (University Of Chicago Press, 2007).
- Harry M. Collins and Trevor Pinch, *The Golem: What You Should Know about Science*, 2nd ed. (Cambridge University Press, 1998).
- Ruth Schwartz Cowan, *More Work For Mother: The Ironies Of Household Technology From The Open Hearth To The Microwave* (Basic Books, 1985).
- Angela N. H. Creager, Norton Wise, and Elizabeth Lunbeck, eds., *Science without Laws: Model Systems, Cases, Exemplary Narratives* (Duke University Press, 2007).
- William Cronon, *Nature's Metropolis: Chicago and the Great West* (W. W. Norton & Company, 1992).
- Lorraine Daston, "The Moral Economy of Science," *Osiris* 10, 2nd Series (1995): 3-24.
- Lorraine Daston and Peter Galison, "The Image of Objectivity," *Representations*, no. 40 (Autumn 1992): 81-128.
- Lorraine Daston and Katharine Park, *Wonders and the Order of Nature, 1150-1750*, 1st ed. (Zone Books, 2001).
- Peter Dear, *Revolutionizing the Sciences: European Knowledge and Its Ambitions, 1500-1700* (Princeton University Press, 2001).
- Joseph Dumit, *Picturing Personhood: Brain Scans and Biomedical Identity* (Princeton University Press, 2003).
- Paul N. Edwards, *The Closed World: Computers and the Politics of Discourse in Cold War America* (The MIT Press, 1997).
- Steven Epstein, *Impure Science: AIDS, Activism, and the Politics of Knowledge* (University of California Press, 1996).
- Paul Feyerabend, *Against Method*, 3rd ed. (Verso, 1993).
- Ludwik Fleck, *Genesis and Development of a Scientific Fact* (University Of Chicago Press, 1981).
- Kim Fortun, *Advocacy After Bhopal*, 2001.
- Sarah Franklin, *Dolly Mixtures: The Remaking of Genealogy* (Duke University Press, 2007).
- Peter Louis Galison, *Image and Logic: A Material Culture of Microphysics* (University Of Chicago Press, 1997).

Slava Gerovitch, *From Newspeak to Cyberspeak: A History of Soviet Cybernetics* (The MIT Press, 2004).

Thomas F. Gieryn, *Cultural Boundaries of Science*, 1999.

Hugh Gusterson, *Nuclear Rites: A Weapons Laboratory at the End of the Cold War* (University of California Press, 1998).

Edward J. Hackett et al., *The Handbook of Science and Technology Studies*, Third Edition, 3rd ed. (The MIT Press, 2007).

Ian Hacking, *Representing and Intervening: Introductory Topics in the Philosophy of Natural Science* (Cambridge University Press, 1983).

Ian Hacking, *The Taming of Chance*, 1st ed. (Cambridge University Press, 1990).

Ian Hacking, *Historical Ontology* (Harvard University Press, 2004).

Donna Haraway, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," *Feminist Studies* 14, no. 3 (Autumn 1988): 575-599.

Donna J Haraway, *Primate Visions: Gender, Race, and Nature in the World of Modern Science*, 1st ed. (Routledge, 1990).

D. J Haraway, "A Cyborg Manifesto: Science, Technology and Social-Feminism in the late Twentieth Century," *Simians, cyborgs, women: The reinvention of nature* (1991): 149—181.

Cori Hayden, *When Nature Goes Public: The Making and Unmaking of Bioprospecting in Mexico* (Princeton University Press, 2003).

Nick Hopwood, *Models: The Third Dimension of Science*, 1st ed. (Stanford University Press, 2004).

David Hounshell, *From the American System to Mass Production, 1800-1932: The Development of Manufacturing Technology in the United States* (The Johns Hopkins University Press, 1985).

Thomas Parke Hughes, *Networks of Power: Electrification in Western Society, 1880-1930* (The Johns Hopkins University Press, 1993).

Alan Irwin and Brian Wynne, *Misunderstanding Science*, 1996.

Sheila Jasanoff et al., *Handbook of Science and Technology Studies*, Revised. (Sage Publications, Inc, 2001).

Adrian Johns, *The Nature of the Book: Print and Knowledge in the Making*, 1st ed. (University Of Chicago Press, 2000).

David Kaiser, *Drawing Theories Apart: The Dispersion of Feynman Diagrams in Postwar Physics*, 1st ed. (University Of Chicago Press, 2005).

Lily Kay, *Who Wrote the Book of Life?: A History of the Genetic Code*, 1st ed. (Stanford University Press, 2000).

Philip Kitcher, *Science, Truth, and Democracy* (Oxford University Press, USA, 2003).

Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 3rd ed. (University Of Chicago Press, 1962).

Imre Lakatos, *The Methodology of Scientific Research Programmes: Volume 1: Philosophical Papers* (Cambridge University Press, 1980).

Bruno Latour, *Science in Action: How to Follow Scientists and Engineers through Society* (Harvard University Press, 1988).

Bruno Latour, *The Pasteurization of France* (Harvard University Press, 2005).

Bruno Latour and Steve Woolgar, *Laboratory Life* (Princeton University Press, 1986).

John Law, *After Method: Mess in Social Science Research*, 1st ed. (Routledge, 2004).

Michael Lynch, *Scientific Practice and Ordinary Action: Ethnomethodology and Social Studies of Science* (Cambridge University Press, 1997).

- Donald MacKenzie, *Inventing Accuracy: A Historical Sociology of Nuclear Missile Guidance* (The MIT Press, 1993).
- Donald MacKenzie, *An Engine, Not a Camera: How Financial Models Shape Markets* (The MIT Press, 2008).
- Emily Martin, *Flexible Bodies*, 1st ed. (Beacon Press, 1995).
- Leo Marx, *The Machine in the Garden: Technology and the Pastoral Ideal in America*, 35th ed. (Oxford University Press, USA, 2000).
- Robert K. Merton, *The Sociology of Science: Theoretical and Empirical Investigations* (University Of Chicago Press, 1979).
- Philip Mirowski, *More Heat than Light: Economics as Social Physics, Physics as Nature's Economics* (Cambridge University Press, 1991).
- Philip Mirowski, *Machine Dreams Economics Becomes a Cyborg Science*, 1st ed. (Cambridge University Press, 2001).
- Adriana Petryna, *Life Exposed: Biological Citizens after Chernobyl*, 1st ed. (Princeton University Press, 2002).
- Andrew Pickering, *The Mangle of Practice: Time, Agency, and Science*, 1st ed. (University Of Chicago Press, 1995).
- Andrew Pickering, *Constructing Quarks: A Sociological History of Particle Physics* (University Of Chicago Press, 1999).
- Theodore M. Porter, *Trust in Numbers* (Princeton University Press, 1996).
- Paul Rabinow, *French DNA: Trouble in Purgatory* (University Of Chicago Press, 2002).
- Paul Rabinow, *Anthropos Today: Reflections on Modern Equipment* (Princeton University Press, 2003).
- Hans-Jorg Rheinberger, *Toward a History of Epistemic Things: Synthesizing Proteins in the Test Tube*, 1st ed. (Stanford University Press, 1997).
- Nikolas Rose, *The Politics of Life Itself: Biomedicine, Power, and Subjectivity in the Twenty-First Century* (Princeton University Press, 2006).
- Steven Shapin, *A Social History of Truth: Civility and Science in Seventeenth-Century England* (University Of Chicago Press, 1995).
- Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump* (Princeton University Press, 1989).
- Merritt Roe Smith, *Harpers Ferry Armory and New Technology* (Cornell University Press, 1980).
- Susan Leigh Star and James R. Griesemer, "Institutional Ecology, 'Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39," *Social Studies of Science* 19, no. 3 (August 1989): 387-420.
- Charis Thompson, *Making Parents: The Ontological Choreography of Reproductive Technologies*, 1st ed. (The MIT Press, 2007).
- Sharon Traweek, *Beamtimes and Lifetimes: The World of High Energy Physicists* (Harvard University Press, 1992).
- Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (University Of Chicago Press, 2008).
- H. Watson-Veran and D. Turnbull, "Science and Other Indigenous Knowledge Systems," *Knowledge: Critical Concepts* (2005).
- Richard S. Westfall, *The Construction of Modern Science: Mechanisms and Mechanics* (Cambridge University Press, 1978).
- M. Norton Wise, ed., *Growing Explanations: Historical Perspectives on Recent Science* (Duke University Press, 2004).