

**GRADUATE PROGRAM IN SCIENCE AND TECHNOLOGY STUDIES
YORK UNIVERSITY**

**GS/STS 6001 INTRODUCTION TO SCIENCE AND TECHNOLOGY
STUDIES**

SYLLABUS – FALL 2017

COURSE DESCRIPTION:

This course offers an orientation to the themes, theories, and literatures that shape the contours of Science and Technology Studies. The seminar develops one of many possible genealogies of STS, plotting a course through a body of literature that has long grappled with the relations between science and politics, and nature and culture. The course aims to build a common vocabulary and theoretical framework for examining specific sites of knowledge production and practice in science and technology. To do this, the readings draw on literatures in philosophy, history, sociology and anthropology of science to familiarize students with a diversity of the disciplines and methodologies that have contributed to the founding of this field. Students will have the opportunity grapple with the concepts around which much STS scholarship is organized, including questions of epistemology, agency, objectivity, embodiment, representation, expertise, relativism, and materiality.

SEMINARS: Fridays 11:30-2:30
Bethune College 228

COURSE DIRECTOR: Joan Steigerwald
215 Vanier College
steiger@yorku.ca
Office Hours: Fridays 2:30-3:30

COURSE REQUIREMENTS:

Evaluation:

Participation	-	20%
Presentations	-	30%
Research paper		
Proposal (November 10)	-	10%
Final Paper (December 8)	-	40%

Participation: All students are expected to have done the required readings for each week with care and reflection, and to come to class prepared to discuss the readings with other members of the class. The success of the discussions requires that each participant be ready to raise questions and to articulate and defend his or her opinions, as well as to listen to and to work with the ideas of other participants. It is recognized that some students are more comfortable with class discussion than others, but opportunities will be created for all students to raise points for discussion. Students who find the seminar context a challenging environment in which to develop thoughts and questions should prepare contributions in advance of the class. But all students should come to class with questions and issues for discussion.

Presentations: All students are required to give two class presentations, worth 15% each. Presentations will take place at the beginning of the class, and should introduce the class to the reading for the week, raise questions and promote class discussion. They should contextualize and to help elucidate the readings to be discussed during the class, and not simply summarize the readings. Presentations should be no more than 20 minutes.

Research paper: A research paper of approximately 7000 words is to be submitted by December 8. A proposal for the research paper, with a clearly articulated thesis, an outline and a preliminary bibliography, is due on November 10.

A Note on Academic Integrity:

All cases of academic misconduct will be prosecuted. York University takes an extremely serious view of Academic Dishonesty, which includes activities such as cheating on examinations, plagiarism, unauthorized collaboration, misrepresentation, and submitting the same material in two different courses without written permission. Students are expected to be familiar with York's Senate Policy on Academic Honesty and should be aware that the consequences of misconduct are severe, and may include expulsion. If an instructor suspects that misconduct has occurred, that instructor has the right to examine students orally on the content or any other facet of submitted work. If you have questions about plagiarism or would like to learn strategies to avoid it, you can visit Scott Library or the Centre for Academic Writing (CAW), or visit the University's Academic Integrity site at <http://www.yorku.ca/academicintegrity> for more information.

OUTLINE OF COURSE

September 8 - Introduction

September 15 – Early Images of Science

Merton, Robert. “Science and the Social Order,” and “The Normative Structure of Science.” In *The Sociology of Science: Theoretical and Empirical Investigations*. Chicago: University of Chicago Press, 1973 [1938, 1942], 254-256; 265-278.

Popper, Karl. “Selections from *The Logic of Scientific Discovery*.” In *The Philosophy of Science*, edited by Richard Boyd and Philip Gasper. New York: Basic Books, 1959, 99-112.

Fleck, Ludwig. “Epistemological Conclusions from the Established History of a Concept.” *Genesis and Development of a Scientific Fact*, translated by Fred Bradley and Thaddeus J. Trenn. Chicago: University of Chicago Press, 1981 [1935], 20-51.

Kuhn, Thomas. “The Nature and Necessity of Scientific Revolutions.” In *The Philosophy of Science*, edited by R. Boyd, P. Gasper, and J. D. Trout. Cambridge: MIT Press, 1991, 148-157. [Excerpt from *The Structure of Scientific Revolutions* (1962).

Paul Feyerabend. “Chinese Introduction,” and “Introduction.” *Against Method: Outline of an Anarchistic Theory of Knowledge*. New York: Verso, 1993 [1975], 1-32.

September 22 – The Social Turn

Bloor, David. “The Strong Programme in the Sociology of Knowledge.” *Knowledge and Social Imagery*, 2nd Ed. Chicago: University of Chicago Press, 1991 [1976], 3-23.

Collins, Harry M. “The TEA Set: Tacit Knowledge and Scientific Networks.” In *The Science Studies Reader*, edited by Mario Biagioli. London: Routledge, 1999 [1974], 95-109.

Shapin, Steven, and Simon Schaffer. “Understanding Experiment,” “Seeing and Believing” The Experimental Production of Pneumatic Facts,” and “The Polity of Science: Conclusions.” *Leviathan and the Air-Pump: Hobbes, Boyle and the Experimental Life*. Princeton: Princeton University Press, 1985, 3-79 and 332-44.

<http://www.library.yorku.ca/e/resolver/id/1867411>

Latour, Bruno. “Crisis,” and “Constitution.” *We Have Never Been Modern*, translated by Catherine Porter. Cambridge, Mass.: Harvard University Press, 1993, 1-48.

September 28 – Laboratory Studies/Experimental Systems

Hacking, Ian. "Introduction: Rationality," and "Microscopes." *Representing and Intervening: Introductory Topics in the Philosophy of Natural Science*. Cambridge: Cambridge University Press, 1983, 1-17 and 186-209.

Collins, Harry, and Trevor Pinch. "A New Window on the Universe: The Non-Detection of Gravitational Radiation." In *The Golem: What You Should Know About Science*, 2nd Ed. Cambridge: Cambridge University Press, 1998, 91-107.
[Excerpted and updated from Collins, Harry. *Changing Order: Replication and Induction in Scientific Practice*. London: Sage, 1985.]

Galison, Peter. "Trading Zone" Coordinating Action and Belief." In *The Science Studies Reader*, edited by Mario Biagioli. New York: Routledge, 1999, 137-60.

Rheinberger, Hans-Jörg. *Toward a History of Epistemic Things: Synthesizing Proteins in the Test Tube*. Stanford: Stanford University Press, 1996, 1-37, 74-83.

Barad, Karen. "Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter." *Signs: Journal of Women in Culture and Society* 28.3 (2003): 801-831.

October 6 – Actor Network Theory (ANT)

Latour, Bruno. "Give Me a Laboratory and I Will Raise the World." In *Science Observed*, edited by K. Knorr and M. Mulkay. London: Sage, 1983, 141-170.

Callon, Michel. "Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St. Brieuç Bay." In *The Science Studies Reader*, edited by M. Biagioli. New York: Routledge, 1999 [1986], 67-83.

Star, Susan Leigh, 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* 19.3 (1989): 387-420.

Schaffer, Simon. "The Eighteenth Brumaire of Bruno Latour." *Studies in History and Philosophy of Science* 22.1 (1991): 175-92.

Hacking, Ian. "Why Ask What?" *The Social Construction of What?* Cambridge, Mass: Harvard University Press, 1999, 1-34.

October 14 – Anthropologies of Science

Clifford, James. "Introduction: Partial Truths." In *Writing Culture: The Poetics and Politics of Ethnography*, edited by James Clifford and George E. Marcus. Berkeley: University of California Press, 1986, 1-26;

Clifford, James. "Feeling Historical." *Cultural Anthropology* 27.3 (2012): 417-426.

Biagioli, Mario. "Galileo the Emblem Maker." *Isis* 81 (1990): 230-258.

Dumit, Joseph. "Illnesses You Have to Fight to Get: Facts as Forces in Uncertain, Emergent Illnesses." *Social Science and Medicine* 62.3 (2006): 577-590.

Kosek, Jake. "Ecologies of Empire: On the New Uses of the Honeybee." *Cultural Anthropology* 25.4 (2010): 650-678.

Helmreich, Stefan. "From Spaceship Earth to Google Ocean: Planetary Icons, Indexes, and Infrastructures." *Social Research* 78.4 (2011): 1211-1242.

October 20 – Historical Epistemologies

Foucault, Michel. "Introduction," and "The Discursive Regularities." *The Archaeology of Knowledge*, translated by A.M. Sheridan Smith. London: Tavistock, 1972, 1-72.

Foucault, Michel. "Right of Death and Power over Life." *The History of Sexuality: An Introduction, Volume I*, translated by Robert Hurley. New York: Vintage, 1978, 135-159.

Rheinberger, Hans-Jörg. "Georges Canguilhem: *Epistemological History*." *An Epistemology of the Concrete: Twentieth-Century Histories of Life*. Durham: Duke University Press, 2010, 25-36.

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

Hacking, Ian. "Historical Ontology." In *Historical Ontology*. Cambridge, Mass.: Harvard University Press, 2002, 1-26.

October 27 – Fall Reading Days

No Class

November 3 – Words and Images

Beer, Gillian. “‘The Face of Nature’: Anthropomorphic Elements in the Language of *The Origin of Species*.” In *Languages of Nature: Critical Essays on Science and Literature*, edited by Ludmilla Jordanova. London: Free Association Books, 1986, 212-243.

Keller, Evelyn Fox. “Genes, Gene Action, and Genetic Programs.” *Making Sense of Life: Explaining Biological Development with Models, Metaphors, and Machines*. Cambridge, Mass.: Harvard University Press, 2003, 123-47.

Lynch, Michael. “Discipline and the Material Form of Images: An Analysis of Scientific Visibility.” *Social Studies of Science* 15.1 (1985): 37-66.

Hankins, Thomas L., and Robert J. Silverman. “Science Since Babel: Graphs, Automatic Recording Devices, and the Universal Language of Instruments.” *Instruments and the Imagination*. Princeton, NJ: Princeton University Press, 1999, 113-47.

Borck, Cornelius. “Sound Work and Visionary Prosthetics: Artistic Experiments in Raoul Hausmann.” *Papers of Surrealism* 4 (2005): 1-25.
<http://www.surrealismcentre.ac.uk/papersofsurrealism/journal4/index.htm>

November 10 – Agencies, Embodiments, Ontologies

Haraway, Donna. “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective.” *Feminist Studies* 14.3 (1988): 575-599.

Pickering, Andrew. “The Mangle of Practice: Agency and Emergence in the Sociology of Science.” *American Journal of Sociology* 99.3 (1993): 559-589.

Cussins [Thompson], Charis. “Ontological Choreography: Agency through Objectification in Infertility Clinics.” *Social Studies of Science* 26.3 (1996): 575-610.

Mol, Annemarie, and John Law. “Embodied Action, Enacted Bodies: The Example of Hypoglycaemia.” *Body & Society* 10.2-3 (2004): 43-62.

Alaimo, Stacy. “Bodily Natures,” and “Deviant Agents.” *Bodily natures: Science, Environment, and the Material Self*. Indianapolis: Indiana University Press, 2010, 1-25 and 113-40.

November 17 – Technologies and Artefacts

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

Jain, Sarah S. "The Prosthetic Imagination: Enabling and Disabling the Prosthesis Trope." *Science, Technology, & Human Values* 24.1 (1999): 31-54.

Latour, Bruno. "The Berlin Key or How To Do Words With Things." In *Matter, Materiality and Modern Culture*, edited by Paul Graves-Brown. London: Routledge, 2000, 10-21.

Adams, Annmarie and Kevin Schwartzman. "Pneumothorax Then and Now." *Space and Culture* 8.4 (2005): 435-48.

Hecht, Gabrielle. "A Cosmogram for Nuclear Things." *Isis* 98.1 (2007): 100-108.

November 24 – Postcolonialism and Global Technoscience

Pratt, Mary Louise. "Introduction: Criticism in the Contact Zone," and "Alexander von Humboldt and the Reinvention of América." *Imperial Eyes: Travel Writing and Transculturation*. New York: Routledge, 1992, 1-11 and 111-43.

Redfield, Peter. "The Half-Life of Empire in Outer Space." *Social Studies of Science* 32.5-6 (2002): 791-825.

Secord, James A. "Knowledge in Transit." *Isis* 95.4 (2004): 654-672.

Sunder Rajan, Kaushik. "Subjects of Speculation: Emergent Life Sciences and Market Logics in the United States and India." *American Anthropologist* 107.1 (2005): 19-30.

Mavhunga, Clapperton. "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*, edited by Gabrielle Hecht. Cambridge: MIT Press, 2011, 231-266.

December 1 – Science and Politics

Collins, H.M., and Robert Evans. "The Third Wave of Science Studies: Studies of Expertise and Experience." *Social Studies of Science* 32.2 (2002): 235-296.

Jasanoff, Sheila. "Breaking the Waves in Science Studies: Comment on H.M. Collins and Robert Evans 'The Third Wave of Science Studies.'" *Social Studies of Science* 33.3 (2003): 389-400.

Oreskes, Naomi. "Science and Public Policy: What's Proof Got To Do With It?" *Environmental Science & Policy* 7.5 (2004): 369-383.

Jasanoff, Sheila. "A New Climate for Society." *Theory, Culture & Society* 27.2-3 (2010): 233-253.

Chun, Wendy Hui Kyong. "On Hypo-Real Models or Global Climate Change: A Challenge for the Humanities." *Critical Inquiry* 41.3 (2015): 675-703.