

STS5001 3.0

Introduction to Science & Technology Studies 2017-18

Course Meetings	Course Director Information
Thursday 11.30am-2.30pm BC 228	Kean Birch North Ross 411 Tel.: 416-736-2100 ext.30126 Email: kean@yorku.ca Office hours: Email me to arrange

OVERVIEW

This course introduces students to the theories, concepts, and literatures that configure the field of science and technology studies, or STS. The field of STS can be defined, perhaps simplistically, as the social study of science, technology, and innovation drawing on an interdisciplinary melange of sociological, anthropological, philosophical, historical, and other approaches. The course provides an overview of STS from the 'classics' (e.g. SSK, ANT, SCOT, feminist) in the field through to contemporary theoretical currents (e.g. governance, policy, participation, social movements, political economy). As a seminar, it is underpinned by students actively engaging with the core and optional readings through in-class presentations and discussions, as well as more detailed written analyses of key texts and ideas.

ASSIGNMENT GUIDELINES

Dues Dates

ASSIGNMENT	DATE	MARK
Presentation	Varies	20
Participation & reading summaries	Ongoing	20
Essay	'Week 13'	60

Assignments

1. Presentation

- You are expected to do one individual presentation during the course. Think about which topics interest you the most and we will negotiate presentation dates in the first seminar.
 - Presentation requirements:
 - Cover all the readings (more than required).
 - Outline and explain the contents of the readings, in your own words.
 - Relate the material to a real world example.
 - Raise several relevant questions for discussion.
 - Time limit is 15-20 minutes.
2. Participation
- You are expected to attend all the seminars and participate in discussion of the readings throughout the course.
 - Requirements:
 - Attend all classes.
 - Write a one-page summary (maximum) of the readings.
 - Engage in discussion in every class.
3. Essay
- You are expected to write a 3000-word essay. The purpose of the essay is to show me that you can review and synthesize the literatures you have read in and outside the class.
 - Question: *Outline the intellectual evolution of science and technology studies, including a discussion of key analytical changes during its history*

OTHER ISSUES

Referencing

You should use the APA referencing system for all assignments; see guidelines here: <https://owl.english.purdue.edu/owl/resource/560/01/>

Extensions

There are no extensions without documented mitigating circumstances (e.g. illness, bereavement, etc.); these should be communicated to me before deadlines by email. Being late with an assignment without informing me of the documented circumstances will result in a grade of 0%.

Academic Honesty

You should all know what this means by now. The minimum penalty is 0% in the assignment. If you are unclear about academic honesty then consult York University guidelines: <http://www.yorku.ca/secretariat/policies/document.php?document=69>.

Academic Accommodation

York University shall make reasonable and appropriate accommodations and adaptations in order to promote the ability of students with disabilities to fulfill the academic requirements of their programs. The nature and extent of accommodations shall be consistent with and supportive of the integrity of the curriculum and of the academic standards of programs or courses. Provided

that students have given sufficient notice about their accommodation needs, instructors shall take reasonable steps to accommodate these needs in a manner consistent with the guidelines established hereunder. ‘Disabilities’ shall be defined as those conditions so designated under the Ontario Human Rights Code in force from time to time, and will in any event include physical, medical, learning, and psychiatric disabilities. The York Senate Policy on Academic Accommodation for Students with Disabilities can be found at:

<http://www.yorku.ca/secretariat/policies/>

Please note it is up to you to seek advice and help from the Counseling and Disability Service (CDS). Requests for accommodation must be submitted to the course director at the beginning of the course OR immediately after the letter of accommodation is issued by the CDS:

<http://www.yorku.ca/cds/aboutus/>

CLASS SCHEDULE OF TOPICS AND READINGS

<p style="text-align: center;">1</p> <p style="text-align: center;">PLEASE NOTE: This class will be held on Friday 8th September 11.30am- 2.30pm</p>	<p>Introduction: What is STS?</p> <p>Required:</p> <ul style="list-style-type: none"> • Bowden, G. (1995) Coming of age in STS: Some methodological musings, in S. Jasanoff et al. (eds) <i>The Handbook of Science and Technology Studies</i>, London: SAGE. • Pinch, T. (2007) The Sociology of Science and Technology, in C. Bryant and D. Peck (eds) <i>21st Century Sociology</i>, London: SAGE. <p>Read a couple of introductory chapters from the following books as a way to introduce yourself to STS:</p> <ul style="list-style-type: none"> • Bijker, W. et al. (eds) (1989) <i>The Social Construction of Technological Systems</i>, Cambridge MA: MIT Press. • Bijker, W. and Law, J. (eds) (1994) <i>Shaping Technology/Building Society</i>, Cambridge MA: MIT Press. • Hess, D. (1997) <i>Science Studies: An Advanced Introduction</i>, New York: New York University Press. • Fuller, S. (2006) <i>The Philosophy of Science and Technology Studies</i>, London: Routledge. • Fricke, S. and Moore, K. (eds) (2006) <i>The New Political Sociology of Science: Institutions, Networks, and Power</i>, Madison: University of Wisconsin Press. • Sismondo, S. (2010) <i>An Introduction to Science and Technology Studies</i>, Oxford: John Wiley & Sons. • Mirowski, P. (2011) <i>ScienceMart</i>, Cambridge MA: Harvard University Press. • Felt et al. (eds) (2017) <i>The Handbook of Science and Technology Studies</i>, Cambridge MA: MIT press.
<p style="text-align: center;">2</p> <p style="text-align: center;">21st Sept</p>	<p>Early social studies of science</p> <p>Required:</p> <ul style="list-style-type: none"> • Fleck, L. (1935[1979]) <i>On the Genesis and Development of a Scientific Fact</i>, Chicago: University of Chicago Press, pp.38-51 • Merton, R.K. (1942[1973]) <i>The Sociology of Science: Theoretical and Empirical Investigations</i>, Chicago: University of Chicago Press, pp.267-278. • Ch.1-3, Kuhn, T. (1970) <i>The Structure of Scientific Revolutions</i>, Chicago: University of Chicago Press, pp.1-34.

	<p>Optional:</p> <ul style="list-style-type: none"> • Introduction + Ch.1, Feyerabend, P. (1988) <i>Against Method</i>, London: Verso, pp.9-19.
<p>3</p> <p>28th Sept</p>	<p>Sociology of scientific knowledge (SSK)</p> <p>Required</p> <ul style="list-style-type: none"> • Edinburgh & Bath Schools <ul style="list-style-type: none"> ○ Ch.1, Bloor, D. (1976[1991]) <i>Knowledge and Social Imagery</i>, Chicago: University of Chicago Press, pp.3-23. ○ Collins, H. (1981) Introduction: Stages in the empirical programme of relativism, <i>Social Studies of Science</i> 11: 3-10. ○ Introduction to 2011 edition, Shapin, S. and Schaffer, S. (1985[2011]) <i>Leviathan and the Air-Pump</i>, Princeton: Princeton University Press. ○ Ch.5, Barnes, B. et al. (1996) <i>Scientific Knowledge: A Sociological Analysis</i>, Chicago: University of Chicago Press, pp.110-139. <p>Optional</p> <ul style="list-style-type: none"> • Shapin, S. (1982) History of science and its sociological reconstructions, <i>History of Science</i> 20: 157-211. • Collins, H. and Pinch, T. (1993) <i>The Golem: What You Should Know about Science</i> (2nd edition), Cambridge: Cambridge University Press. • Ch.1, Fuller, S. (2002) <i>Social Epistemology</i>, Bloomington: Indiana Universality Press, pp.3-30.
<p>4</p> <p>5th Oct</p>	<p>Laboratory studies & Actor Network Theory (ANT)</p> <p>Required:</p> <ul style="list-style-type: none"> • Ch.1, Woolgar, S. and Latour, B. (1979[1986]) <i>Laboratory Life</i>, Princeton: Princeton University Press, pp.15-42. • Callon, M. (1986) Some Elements of a Sociology of Translation: domestication of the scallops and the fishermen of St Brieuc Bay, in J. Law (ed.) <i>Power, Action and Belief</i>, London: Routledge. • Ch.2, Knorr-Cetina, K. (1999) <i>Epistemic Cultures</i>, Cambridge MA: Harvard University Press, pp.26-45. <p>Optional:</p> <ul style="list-style-type: none"> • Law, J. (1989) Technology and heterogeneous engineering: The case of Portuguese expansion, in Bijker, W. et al. (eds) <i>The Social Construction of Technological Systems</i>, Cambridge MA: MIT Press. • Amsterdamska, O. (1990) Surely you are joking, Monsieur Latour!, <i>Science, Technology, and Human Values</i> 15(4): 495-504. • McLellan, C. (1996) The economic consequence of Bruno Latour, <i>Social Epistemology</i> 10(2): 193-208. • Bloor, D. (1999) Anti-Latour, <i>Studies in History and Philosophy of Science</i> 30(1): 81-112.
<p>5</p> <p>12th Oct</p>	<p>Science studies meets technology studies</p> <p>Required:</p> <ul style="list-style-type: none"> • Winner, L. (1980) Do artifacts have politics?, <i>Daedalus</i> 109(1): 121-136. • Pinch, T. and Bijker, W. (1989) The social construction of facts and artifacts, in Bijker, W. et al. (eds) <i>The Social Construction of Technological Systems</i>, Cambridge MA: MIT Press. • Bijker, W. (1995) Sociohistorical technology studies, in S. Jasanoff et al. (eds) <i>The</i>

	<p><i>Handbook of Science and Technology Studies</i>, London: SAGE.</p> <ul style="list-style-type: none"> • MacKenzie, D. and Wajcman, J. (1999) Introductory essay: The social shaping of technology, in D. MacKenzie and J. Wajcman (eds) <i>The Social Shaping of Technology</i>, Buckingham: Open University Press. <p>Optional:</p> <ul style="list-style-type: none"> • Ch.1, Hughes, S. (1983) <i>Networks of Power</i>, Baltimore: Johns Hopkins University Press.
<p>6</p> <p>19th Oct</p>	<p>Feminist technoscience</p> <p>Required:</p> <ul style="list-style-type: none"> • Haraway, D. (1988) Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective, <i>Feminist Studies</i> 14(3): 575-599. • Ch.4, Harding, S. et al. (2008) <i>Sciences From Below: Feminisms, Postcolonialities and Modernities</i>, Durham: Duke University Press, pp.101-129. • de la Bellacasa, M.P. (2011) Matters of Care in Technoscience. Assembling Neglected Things, <i>Social Studies of Science</i> 41(1): 86-106. <p>Optional:</p> <ul style="list-style-type: none"> • Schwartz Cowan, R. (1983) <i>More Work for Mother</i>, New York: Basic Books. • Wajcman, J. (2007) From Women and Technology to Gendered Technoscience, <i>Information, Communication & Society</i> 10(3): 287–298.

**** READING WEEK (26-27th October) ****

<p>7</p> <p>2nd Nov</p>	<p>Materialism and STS</p> <p>Required:</p> <ul style="list-style-type: none"> • Star, S.L. (1999) The ethnography of infrastructure, <i>American Behavioral Scientist</i> 43: 377-391. • Mol, A. (1999) Ontological politics: a word and some questions, in J. Law and J. Hassard (eds) <i>Actor Network Theory and After</i>, Oxford: Blackwell/Sociological Review, pp. 74-89. • Barad, K. (2003) Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter, <i>Signs</i> 28(3): 801-831. <p>Optional:</p> <ul style="list-style-type: none"> • Law, J. and Mol, A. (1995) Notes on Materiality and Sociality, <i>The Sociological Review</i> 43: 274-294. • Ch.2, MacKenzie, D. (2009) <i>Material Markets</i>, OUP. • Mitchell, T. (2009) Carbon democracy, <i>Economy and Society</i> 38(3): 399-432.
<p>8</p> <p>9th Nov</p>	<p>Science, innovation, & policy</p> <p>Required:</p> <ul style="list-style-type: none"> • Miller, C. (2001) Hybrid Management: Boundary Organizations, Science Policy, and Environmental Governance in the Climate Regime, <i>Science, Technology, & Human Values</i> 26(4): 478-500. • Jasanoff, S. (2004) The idiom of co-production, in S. Jasanoff (ed.) <i>States of Knowledge</i>, London: Routledge. • Jasanoff, S. (2004) Science and citizenship: A new synergy, science, and public

	<p>policy, <i>Science and Public Policy</i> 31: 90-94.</p> <ul style="list-style-type: none"> • Sarewitz, D. and Pielke Jr., R. (2007) The neglected heart of science policy: Reconciling supply of and demand for science, <i>Environmental Science & Policy</i> 10(1): 5-16. • Godin, B. (2006) The linear model of innovation: The historical construction of an analytical framework, <i>Science, Technology and Human Values</i> 31(6): 639-667. <p>Optional:</p> <ul style="list-style-type: none"> • Jasanoff, S. and Kim, S-H. (2009) Containing the atom: Sociotechnical imaginaries and nuclear power in the United States and South Korea, <i>Minerva</i> 47: 119-146. • Fagerberg, J. and Verspagen, B. 2009. Innovation studies -The emerging structure of a new scientific field, <i>Research Policy</i> 38: 218-233. • Mazzucato, M. (2013) <i>The Entrepreneurial State</i>, London: Anthem Press.
<p>9 16th Nov</p>	<p>Political economy of technoscience</p> <p>Required:</p> <ul style="list-style-type: none"> • Ch.2, Mirowski, P. (2011) <i>ScienceMart</i>, Cambridge MA: Harvard University Press, pp.41-83. • Birch, K. (2017) Rethinking <i>value</i> in the bio-economy: Finance, assetization and the management of value, <i>Science, Technology and Human Values</i> 42(3): 460-490. • Tyfield et al. (eds) (2017) <i>The Routledge Handbook of the Political Economy of Science</i>, London: Routledge. <p>Optional:</p> <ul style="list-style-type: none"> • Callon, M. (1998) The embeddedness of economic markets in economics, in M. Callon (ed.) <i>The Laws of the Markets</i>, Oxford: Blackwell. • Borup, M. et al. (2006) The sociology of expectations in science and technology, <i>Technology Analysis & Strategic Management</i> 18(3-4): 285-298. • Lave, R. et al. (2010) Introduction: STS and neoliberal science, <i>Social Studies of Science</i> 40(5): 659-675. • Thorpe, C. and Gregory, J. (2010) Producing the Post-Fordist Public: The Political Economy of Public Engagement with Science, <i>Science as Culture</i> 19 (3): 273-301. • Ch.3, Mirowski, P. (2011) <i>ScienceMart</i>, Cambridge MA: Harvard University Press. • Tyfield, D. (2012) A cultural political economy of research and innovation in an age of crisis, <i>Minerva</i> 50: 149-167. • Birch, K. (2013) The political economy of technoscience: An emerging research agenda, <i>Spontaneous Generations: A Journal for the History and Philosophy of Science</i> 7(1): 49-61. • Berman, E.P. (2014) Not Just Neoliberalism: Economization in U.S. Science & Technology Policy, <i>Science, Technology, & Human Values</i> 39: 397-431.
<p>10 23rd Nov</p>	<p>Public understanding of / engagement with / participation in technoscience</p> <p>Required:</p> <ul style="list-style-type: none"> • Wynne, B. (1992) Misunderstood Misunderstandings: Social Identities and Public Uptake of Science, <i>Public Understanding of Science</i> 1: 281-304. • Wynne, B. (1995) Public understanding of science, in S. Jasanoff et al. (eds) <i>The Handbook of Science and Technology Studies</i>, London: SAGE. • Felt, U. and Fochler, M. (2010) Machineries for Making Publics: Inscribing and Describing Publics in Public Engagement, <i>Minerva</i> 48 (3): 219-239. <p>Optional:</p>

	<ul style="list-style-type: none"> Royal Society Report (1985): https://royalsociety.org/~media/Royal_Society_Content/policy/publications/1985/10700.pdf Ch.1, Irwin, A. (1995) <i>Citizen Science</i>, London: Routledge, pp.9-36. Davies, S. (2008) Constructing communication: Talking to scientists about talking to the public, <i>Science Communication</i> 29(4): 413-434.
<p>11</p> <p>30th Nov</p>	<p>Expertise, social movements, & technoscience</p> <p>Required:</p> <ul style="list-style-type: none"> Gieryn, T. (1983) Boundary-work and the demarcation of science from non-science: strains and interests in professional interests of scientists, <i>American Sociological Review</i> 48:781-795. Cozzens, S. and Woodhouse, E. (1995) Science, government, and the politics of knowledge, in S. Jasanoff et al. (eds) <i>The Handbook of Science and Technology Studies</i>, London: SAGE. Collins, H. and Evans, R. (2002) The third wave of science studies: Studies of expertise and experience, <i>Social Studies of Science</i> 32(2): 235-296. Frickel, S. et al. (2010) Undone Science: Charting Social Movement and Civil Society Challenges to Research Agenda Setting, <i>Science, Technology & Human Values</i> 35: 444-473. <p>Optional:</p> <ul style="list-style-type: none"> Epstein, S. (1995) The Construction of Lay Expertise: AIDS Activism and the Forging of Credibility in the Reform of Clinical Trials, <i>Science, Technology, & Human Values</i> 20(4): 408-437. Ch.1, Moore, K. (2008) <i>Disrupting Science</i>, Princeton: Princeton University Press, pp.1-21 – on her website (Loyola). Hess, D. (2016) <i>Undone Science</i>, Cambridge MA: MIT Press.
<p>12</p> <p>7th Dec</p>	<p>Governance of technoscience</p> <p>Required:</p> <ul style="list-style-type: none"> Funtowicz, S. and Ravetz, J. (1993) Science for the post-normal age, <i>Futures</i> 25(7): 739-755. Introduction, Gibbons, M. et al. (1994) <i>The New Production of Knowledge</i>, London: SAGE, pp.1-16. Ch.1, Fuller, S. (2000) <i>The Governance of Science</i>, Buckingham: Open University Press, pp.7-27. Stirling, A. (2008) “Opening up” and “closing down” power, participation, and pluralism in the social appraisal of technology, <i>Science, Technology, & Human Values</i> 33(2): 262-294. <p>Optional:</p> <ul style="list-style-type: none"> Geels, F. (2002) Technological transitions as evolutionary configuration processes: A multi-level perspective and a case-study, <i>Research Policy</i> 31(8-9): 1257-1274. Barben, D. et al. (2008) Anticipatory governance of nanotechnology: Foresight, engagement, and integration, in E. Hackett et al. (eds) <i>The Handbook of Science and Technology Studies</i>, Cambridge MA: MIT Press. Collins, H. and Evans, R. (2017) <i>Why Democracies Need Science</i>, Cambridge: Polity.