

February 27, 2012

Spring 2014

**STS 5974: What is STS for? What are STS scholars for?
(Alternate Perspectives on Science, Technology, and Medicine)**

Gary Downey

Meet Wednesdays at 3:00 PM

Course Purpose

The main purpose of this independent study is to explore practices STS scholars have used, are using, and could use to make a difference beyond the field, in both academic and non-academic arenas.

STS builds on critiques of the diffusion model of knowledge creation, diffusion and utilization. Yet most STS scholarship depends primarily upon the diffusion model for its influence and effectiveness.

STS is a small field. Its programs have spread across the planet and gained significant scholarly status. Yet at each institution, STS tends to be a small configuration of scholars and activities in relatively marginal physical and intellectual spaces. Furthermore, STS scholarship may be increasingly at risk from a combination of budget reductions and challenges to its jurisdictional claims from related fields.

Still, no other field takes as its explicit focus relationships between the so-called technical or knowledge dimensions of science and technology and the so-called nontechnical social, cultural, political, etc. dimensions. STS work to date has clearly demonstrated that all activities in and around science and technology span these distinctions. Our analytical tendency to invent and rely upon compound words (e.g., sociotechnical, technopolitical, socio-material, technoscience, etc.) is but one indicator. Yet STS scholarship has had uneven success in making a difference beyond the field, even though all STS scholars have developed practices to cross its boundaries (including through pedagogy).

This course calls attention to the problem of producing STS scholarship that can scale up. It asks if the issue of scale and practices of critical participation can and should become more routine concerns in STS venues. It challenges participants to reflect on how they think about and might seek to enact relationships between the academic and nonacademic dimensions of their work. To wit: Do I care about making a difference beyond the field? Should I? What sorts of difference do I seek? What sorts of scholarly practices have been successful? Which less so? Wherein lie barriers? Are there new opportunities? How do I think about this problem in the first place?

STS is far from an upper limit on the number of STS-trained scholars and STS-informed practitioners who can make a difference by addressing simultaneously the technical and nontechnical dimensions of issues involving science and technology. Why then stay small? What would it take to get bigger?

STS might be at a key moment in its short history. Perhaps it is a good time to reflect and act more collectively on the twin questions: What is STS for? What are STS scholars for?

Course Requirements

Assignments: The student must complete two 3-4 page reflections on the reading to date and a final research project of 10-15 pages. For the research project, the student must make two brief formative presentations (weeks 6 & 10) and one summative presentation (week 15).

One purpose of the reflections is to enable you to receive feedback at an early point on how you're doing in the class.

The research assignment has three options (substitute C&I for STS if appropriate):

- (1) Examine the career of a prominent STS scholar, making visible and accounting for the relationship between her/his core academic STS writings and other STS and non-STS work. How does (s)he imagine and carry out the scaling up of the what (s)he considers key contributions?
- (2) Examine and discuss a practice of scaling up found in STS work.
- (3) Design and obtain instructor's approval of a research project pertaining to the issue of scaling up in STS.

Grading will be relative to where you are when you begin the course. Successful progress toward the degree always requires both insight and effort, but the proportions vary from student to student.

Following are rough proportions for each area of activity, to help you apportion your efforts:

- 40% Class participation, including leading class discussions
- 15% Reaction #1, due at 11:59pm Sunday, February 12.
- 15% Reaction #2, due at 11:59pm Sunday, March 18.
- 30% Final research project due at 11:59pm Wednesday, May 9.

Formative student evaluations: The professor will provide during weeks 6 and 11 a short, written assessment offering an "estimate of your final grade based on your performance to date."

Readings

Required and recommended readings are available as pdfs at the course Scholar site or through the VT library. Please download SSS and ST&HV articles available through the library. STS journals need to show usage to justify continued subscriptions.

Schedule

Week 1: Big STS? *January 20*

- Downey, Gary Lee. "What is engineering studies for? Dominant practices and scalable scholarship." *Engineering Studies* 1.1 (2009): 55-76.
- Downey, Gary. "Are engineers losing control of technology?: From 'problem solving' to 'problem definition and solution' in engineering education." *Chemical Engineering Research and Design* 83.6 (2005): 583-595.

Related

- Downey, Gary Lee, and Joseph Dumit. "Locating and Intervening." *Cyborgs and Citadels*. Santa Fe: School of American Research, 1997.
- Anonymous, "Science Studies (Science, Technology, and Society): A Proposed Center in the College of Arts and Sciences," Blacksburg: Virginia Tech, 1979.

Week 2: Being STS Now *January 27*

- Cohen, Benjamin R. and Wyatt Galusky. "Guest Editorial." *Science as Culture* 19.1 (2010): 1-14.
- Galusky, Wyatt. "Playing Chicken: Technologies of Domestication, Food, and Self." *Science as Culture* 19.1 (2010): 15-35.
- Takeshita, Chikako. "The IUD in Me: On Embodying Feminist Technoscience Studies." *Science as Culture* 19.1 (2010): 37-60.
- Halfon, Saul. "Encountering Birth: Negotiating Expertise, Networks, and My STS Self." *Science as Culture* 19.1 (2010): 61-77.
- McCaughey, Martha. "Got Milk?: Breastfeeding as an 'Incurably Informed' Feminist STS Scholar." *Science as Culture* 19.1 (2010): 79-100.
- Roberts, Jody A. "Reflections of an Unrepentant Plastiphobe: Plasticity and the STS Life." *Science as Culture* 19.1 (2010): 101-120.

Week 3: Working (in) STS *February 3*

- "*STS and Careers: Have We Come Home?*". Perf. Jay Aronson, Brice Laurent, Shobita Parthasarathy, Anne Pollock, Kris Saha, Sonja Schmid. *Conference@STS.Next.20*. Harvard University, 9 Apr. 2011. Web.
- Science and Technology Studies: Defining the Boundaries?*". Perf. Javier Lezaun. *Conference@STS.Next.20*. Harvard University, 8 Apr. 2011. Web.
- The Core of STS: Where Are We? Where Are We Headed?* Perf. Yuko Fujigaki. *Conference@STS.Next.20*. Harvard University, 9 Apr. 2011. Web.
- Harvard Program on Science, Technology, and Society. "Conference@STS.Next.20." *ConferenceSTSNext20*. Harvard University, n.d. Web. 03 Mar. 2014.

Related

- Does STS Matter, and to Whom?* Perf. Sheila Jasanoff, Theodore Porter, Andrew Jewett. *Conference@STS.Next.20*. Harvard University, 9 Apr. 2011. Web.

STS and the Global / Postcolonial: What are the stakes and why should we care?

Kaushik Sunder Rajan <http://pilot.stsnext20.org/conference/files/2011/11/STS-and-the-Global-Sunder-Rajan.pdf>

Comment [KAK1]: This comes with a note saying not to reference or cite it without permission; I would assume that applies here?

Week 4: Outlooks for STS in the late 1980s February 10

[Reaction essay #1 due February 12]

"Science Studies (Science, Technology, and Society): A Proposed Center in the College of Arts and Sciences," Blacksburg: Virginia Tech, 1979. 24pp

Edge, David. "THE SCIENCE STUDIES UNIT EDINBURGH UNIVERSITY: Case Study." *Conference on the State of Science, Technology, and Society: Programs in Western Europe, North America, and Australia*. Ed. John Wilkes. Worcester, MA: Society for Social Studies of Science and Worcester Polytechnic Institute, 1987. 59-66. Print.

Kenniston, Kenneth. "Ups and Downs at M.I.T: The Program 'Science, Technology, and Society'." *Conference on the State of Science, Technology, and Society: Programs in Western Europe, North America, and Australia*. Ed. John Wilkes. Worcester, MA: Society for Social Studies of Science and Worcester Polytechnic Institute, 1987. 90-103. Print.

Smit, W. A., and E. T. Woudstra. "PROGRAM OF PHILOSOPHY OF SCIENCE, TECHNOLOGY AND SOCIETY at the UNIVERSITY OF TWENTE Enschede, the Netherlands." *Conference on the State of Science, Technology, and Society: Programs in Western Europe, North America, and Australia*. Ed. John Wilkes. Worcester, MA: Society for Social Studies of Science and Worcester Polytechnic Institute, 1987. 104-18. Print.

Badham, Richard, Jim Falk, Eveleen Richards, and John Schuster. "THE DEVELOPMENT OF THE DEPARTMENT OF SCIENCE AND TECHNOLOGY STUDIES AT THE UNIVERSITY OF WOLLONGONG." *Conference on the State of Science, Technology, and Society: Programs in Western Europe, North America, and Australia*. Ed. John Wilkes. Worcester, MA: Society for Social Studies of Science and Worcester Polytechnic Institute, 1987. 130-36. Print.

"SCIENCE AND TECHNOLOGY STUDIES AT VIRGINIA TECH A Unified Approach to Science and Technology through History, Philosophy, and Sociology." *Conference on the State of Science, Technology, and Society: Programs in Western Europe, North America, and Australia*. Ed. John Wilkes. Worcester, MA: Society for Social Studies of Science and Worcester Polytechnic Institute, 1987. 249-59. Print.

Jasanoff, Sheila, ed. *The Outlook for STS: Report on an STS Symposium & Workshop*. Ithaca, NY: Department of Science & Technology Studies, Cornell University, 1989. (selections)

Sheila Jasanoff, Introduction i-iv

Stephen H. Cutcliffe, The STS Curriculum: What Have We Learned in Twenty Years? 67-79

Discussion Group I: The STS Curriculum 81-97

Report: Working Group I: The STS Curriculum 99-101

Discussion Group II: The STS Research Agenda 125-139

Report: Working Group II: STS Research Agenda 141-143

David Edge, STS: A View From Over the Pond 145-151

Marcel Chotkowski LaFollette, STS Journals: Facing the Future 153-163

Commentary 165-168

Susan Cozzens, Topic: STS Journals and Their Mission 169-174

Kenneth Keniston, What is the Outlook for STS? 175-180

Epilogue 181

Workshop Proceedings [workshop]:

Excerpt 1: STS & the Disciplines 183-190

Excerpt 2: The Relevance of STS 191-203

Excerpt 3: Is STS Anti-Science? 205-214

Edward Woodhouse, A Strategy for STS? 215-220

Related

Heitowit, Ezra D., Janet Epstein and Gerald Steinberg, "Science, Technology, and Society: A Guide to the Field. Directory of Teaching, Research, and Resources in the U.S.," Ithaca, N.Y.: Cornell University, 1976.

Fuller, Steve and Sujatha Raman, ed. Teaching Science and Technology Studies: A Guide for Curriculum Planners. Blacksburg: Virginia Tech, 1991.

Week 5: Intervention *February 17*

Zuiderant-Jerak, Teun and Casper Bruin Jensen. "Editorial Introduction: Unpacking 'Intervention' in Science and Technology Studies." *Science as Culture* 16.3 (2007): 227-235.

Jensen, Casper Bruun. "Sorting Attachments: Usefulness of STS in Healthcare Practice and Policy." *Science as Culture* 16. 3 (2007): 237-251.

Mesman, Jessica. "Disturbing Observations as a Basis for Collaborative Research." *Science as Culture* 16. 3 (2007): 281-295.

Zuiderant-Jerak, Teun. "Embodied Interventions—Interventions on Bodies: Experiments in Practices of Science and Technology Studies and Hemophilia Care." *Science, Technology & Human Values* 35. 5 (2010): 677-710.

Woolgar, Steve, Catelijne Coopmans and Daniel Neyland. "Does STS Mean Business?" *Organization* 16. 1 (2009): 5-30.

Lynch, Michael. "Science as a Vacation: Deficits, Surfeits, PUSS, and Doing Your Own Job." *Organization* 16.1 (2009): 101-119.

Willmott, Hugh. "Commentary: Science as Intervention: Recasting Weber's Moral Vision." *Organization* 16.1 (2009): 143-153.

Related

Downey, Gary Lee and Joseph Dumit. "Locating and Intervening." In *Cyborgs and Citadels: Anthropological Interventions in Emerging Sciences and Technologies*, edited by Downey, Gary Lee and Joseph Dumit, 5-30. Santa Fe, N.M.: The SAR Press, 1997.

Bal, Roland and Femke Mastboom. "Engaging with Technologies in Practice: Travelling the Northwest Passage." *Science as Culture* 16.3 (2007): 253-266.

- Markussen, Randi and Finn Olesen. "Rhetorical Authority in STS: Reflections on a Study of II Implementation at a Hospital Ward." *Science as Culture* 16.3 (2007): 267-279.
- Zuiderant-Jerak, Teun. "Preventing Implementation: Exploring Interventions with Standardization in Healthcare." *Science as Culture* 16.3 (2007): 311-329.
- Vikkelsø, Signe. "Description as Intervention: Engagement and Resistance in Actor-Network Analyses." *Science as Culture* 16.3 (2007): 297-309.
- Zeiss, Ragna and Peter Groenewegen. "Engaging Boundary Objects in OMS and STS? Exploring the Subtleties of Layered Engagement." *Organization* 16.1 (2009): 81-100.
- Cochoy, Franck. "Driving a Shopping Cart from STS to Business, and the Other Way Round: On the Introduction of Shopping Carts in American Grocery Stores (1936—1959)." *Organization* 16.1 (2009): 31-55.
- Bijker, Wiebe E. "The Need for Public Intellectuals: A Space for STS: Pre-Presidential Address, Annual Meeting 2001, Cambridge, Ma." *Science, Technology, & Human Values* 28.4 (2003): 443-450.
- Stevens, Sharon McKenzie. "Speaking Out: Toward an Institutional Agenda for Refashioning STS Scholars as Public Intellectuals." *Science, Technology & Human Values* 33.6 (2008): 730-753.

Week 6 Expertise *February 24*

[Check-in replaced by 2-minute formative introductions of research projects]

- Collins, H.M. and Robert Evans. "The Third Wave of Science Studies." *Social Studies of Science* 32.2 (2002): 235-296.
- Lynch, Michael and Simon Cole. "Science and Technology Studies on 'Trial.'" *Social Studies of Science* 35.2 (2005): 269-311.
- Fuller, Steve. "A Step toward the Legalization of Science Studies." *Social Studies of Science* 36.6 (2006): 827-834.
- Lynch, Michael. "From Ruse to Farce." *Social Studies of Science* 36.6 (2006): 819-826.
- Gorman, Michael E. "STS, Ethics, and Knowledge Transfer in the Courtroom: Personal Experiences." *Social Studies of Science* 36.6 (2006): 861-866.
- Edge, David. "Celebration and Strategy: The 4s after 25 Years, and STS after 9-11." *Social Studies of Science* 33.2, no. (2003): 161-169.
- Cole, Simon A. "A Cautionary Tale About Cautionary Tales About Intervention." *Organization* 16.1 (2009): 121-141.

Related

- Turner, Stephen. "What Is the Problem with Experts?" *Social Studies of Science* 31.1 (2001): 123-149.
- Rip, Arie. "Constructing Expertise: In a Third Wave of Science Studies?" *Social Studies of Science* 33.3 (2003): 419-434.
- Collins, H. M. and Robert Evans. "King Canute Meets the Beach Boys: Responses to "the Third Wave"." *Social Studies of Science* 33.3 (2003): 435-452.
- Gorman, Michael E. "Levels of Expertise and Trading Zones." *Social Studies of Science* (2002): 933-938.

- Bora, Alfons. "Technoscientific Normativity and the "Iron Cage" of Law." *Science, Technology & Human Values* 35.1 (2010): 3-28.
- Doing, Park. "Review Essay: Tacit Knowledge: Discovery by or Topic for Science Studies?" *Social Studies of Science* 41.2 (2011): 301-306.
- Papadopoulos, Dimitris. "Alter-Ontologies: Towards a Constituent Politics in Technoscience." *Social Studies of Science* 41.2 (2011): 177-201.
- Durant, Darrin. "Models of Democracy in Social Studies of Science." *Social Studies of Science* 41.5 (2011): 691-714.

Week 7 Engagement Skype interlocutor: David Hess (Vanderbilt) March 3

- Hess, David J. "Sustainable consumption, energy, and failed transitions: The problem of adaptation." *Sustainable Lifestyles in a New Economy* (2013): 159-178.
- Woodhouse, Edward, David Hess, Steve Breyman and Brian Martin. "Science Studies and Activism: Possibilities and Problems for Reconstructivist Agendas." *Social Studies of Science* 32.2 (2002): 297-319.
- Frickel, Scott, et al. "Undone science: social movement challenges to dominant scientific practice." *Science, Technology, and Human Values* 35.4 (2010): 444-473.
- Scott, Pam, Evelleen Richards and Brian Martin. "Captives of Controversy: The Myth of the Neutral Social Researcher in Contemporary Scientific Controversies." *Science, Technology, & Human Values* 15.4 (1990): 474-494.
- Martin, Brian. "Sticking a needle into science: the case of polio vaccines and the origin of AIDS." *Social Studies of Science* 26.2 (1996): 245-276.
- Wynne, Brian. "Seasick on the Third Wave? Subverting the Hegemony of Propositionalism: Response to Collins & Evans (2002)." *Social Studies of Science* 33.3 (2003): 401-417.
- Marris, Claire, Pierre-Benoit Joly and Aric Rip. "Interactive Technology Assessment in the Real World: Dual Dynamics in an Ita Exercise on Genetically Modified Vines." *Science, Technology, & Human Values* 33.1 (2008): 77-100.

Related

- Woodhouse, Edward and Dean Nieuwsma. "Democratic Expertise: Integrating Knowledge, Power, and Participation." In *Policy Studies Review Annual*, edited by Hisschemöller, Matthijs, et al., 73-96. Transaction Publishers, 2001.
- Hamlett, P. W. "Technology Theory and Deliberative Democracy." *Science, Technology, & Human Values* 28.1 (2003): 112-140.
- Bickerstaff, Karen, Irene Lorenzoni, Mavis Jones and Nick Pidgeon. "Locating Scientific Citizenship: The Institutional Contexts and Cultures of Public Engagement." *Science, Technology & Human Values* 35.4 (2010): 474-500.
- Bidwell, David. "Is Community-Based Participatory Research Postnormal Science?" *Science, Technology & Human Values* 34.6 (2009): 741-761.
- Campbell, Nancy D. "Credible Performances: The Performativity of Science Studies." *Social Studies of Science* 34.3 (2004): 433-442.

Comment [KAK2]: This appears to be the correct citation, although it lists a different title for the source:

Woodhouse, Edward J., and Dean A. Nieuwsma. "Democratic expertise: integrating knowledge, power, and participation." *Knowledge, power, and participation in environmental policy analysis*. New Brunswick: Transaction Publishers (2001): 73-95.

- Ashmore, Malcolm. "Ending up on the wrong side: Must the Two Forms of Radicalism Always be at War?." *Social Studies of Science* 26.2 (1996): 305-322.
- Collins, H. M. "In Praise of Futile Gestures: How Scientific Is the Sociology of Scientific Knowledge?" *Social Studies of Science* 26.2 (1996): 229-244.
- Wynne, Brian. "Dazzled by the Mirage of Influence? STS-SSK in Multivalent Registers of Relevance." *Science, Technology, & Human Values* 32.4 (2007): 491-503.
- Pels, Dick. "The Politics of Symmetry." *Social Studies of Science* 26.2 (1996): 277-304.

Week 8 Midstream Modulation & Embedded Humanists *March 17*

Fisher, Erik, Roop L. Mahajan and Carl Mitcham. "Midstream Modulation of Technology: Governance from Within." *Bulletin of Science, Technology & Society* 26.6 (2006): 485-496.

Initial concept paper on midstream modulation.

Fisher, Erik. "Ethnographic Invention: Probing the Capacity of Laboratory Decisions." *NanoEthics* 1.2 (2007): 155-165.

Results of the initial "laboratory engagement study"; written in narrative form and focused on a key developments in laboratory research decision making that coincided with the integrative work. Includes an account of science policies that call for integration.

Fisher, Erik, and R. Mahajan. "Embedding the humanities in engineering: Art, dialogue, and a laboratory." *Trading zones and interactional expertise: Creating new kinds of collaboration* (2010): 209-230.

An account of the interactions between the initial "embedded humanist" and the laboratory director who hosted the scholar. Considers the development and outcomes of their interactions in relation to the "trading zones" and "interactional expertise" frameworks.

Schuurbiens, Daan. "What Happens If the Lab Does Not Stay in the Lab?: Applying Midstream Modulation to Enhance Reflection in the Laboratory." *Science and Engineering Ethics* 17.4 (2011): 769-788.

An account of the STIR project's first two "laboratory engagement studies" and their outcomes; includes descriptions of both "first order" and "second order" reflective learning outcomes.

Fisher, Erik and Daniel Sarewitz. "STIR (Socio-Technical Integration Research)" (film). Consortium for Science, Policy, and Outcomes, 2011.
<http://www.youtube.com/watch?v=feOOT2iI16o>

Comment [KAK3]: For now, I am leaving all annotations; I can remove them later if you think they should go.

Related

- Sørensen, Knut H., and Robin Williams, eds. *Shaping technology, guiding policy: Concepts, spaces and tools*. Cheltenham, UK: Edward Elgar, 2002.
- Webster, Andrew. "Crossing Boundaries: Social Science in the Policy Room." *Science, Technology, & Human Values* 32.4 (2007): 458-478.
- Nowotny, Helga. "How Many Policy Rooms Are There? Evidence-Based and Other Kinds of Science Policies." *Science, Technology, & Human Values* 32.4 (2007): 479-490.
- Wynne, Brian. "Dazzled by the Mirage of Influence? STS-SSK in Multivalent Registers of Relevance." *Science, Technology, & Human Values* 32.4 (2007): 491-503.

Week 9 STS as Co-Production? Skype interlocutor: Sheila Jasanoff (Harvard) March 24

Jasanoff, Sheila. "What judges should know about the sociology of science." *Jurimetrics* (1992): 345-359.

Jasanoff, Sheila. "Beyond Epistemology: Relativism and Engagement in the Politics of Science." *Social Studies of Science* 26.2 (1996): 393-418.

Jasanoff, Sheila. "Science and Technology Studies: A Discussion Paper (with 2002 Letters)." (2002).

Miller, Clark A. "Letter of Support for STS at Harvard University." (2005).

Jasanoff, Sheila. "Proposal for a Secondary Field in Science, Technology, and Society (STS)." (2010).

Dear, Peter and Sheila Jasanoff. "Dismantling Boundaries in Science and Technology Studies." *Isis* 101.4 (2010): 759-774.

Jasanoff, Sheila. "Fields and Fallows." *Interdisciplinarity: Reconfigurations of the Social and Natural Sciences* (2013): 99.

Comment [KAK4]: Is there any more information on where this came from/what this is? I don't even see it on the Scholar site...

Related

Jasanoff, Sheila. "Reconstructing the Past, Constructing the Present." *Social Studies of Science* 30.4 (2000): 621-631.

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.

Jasanoff, Sheila. *The fifth branch: Science advisers as policymakers*. Harvard University Press, 1994.

Jasanoff, Sheila, ed. *States of knowledge: the co-production of science and the social order*. Routledge, 2013.

Jasanoff, Sheila. *Designs on nature: science and democracy in Europe and the United States*. Princeton University Press, 2011.

Week 10 Hegemony/Ontological Politics 1 March 31

[Check-in replaced by 4-6 minute formative presentations on research projects, with handout of abstract and bibliography]

Gramsci, Antonio, and David Forgacs. "Hegemony, Relations of Force, Historical Bloc." *The Gramsci Reader: Selected Writings, 1916-1935*. New York: New York UP, 2000. N. pag. Print.

Gramsci, Antonio, and David Forgacs. "Intellectuals and Education." *The Gramsci Reader: Selected Writings, 1916-1935*. New York: New York UP, 2000. N. pag. Print.

Gramsci, Antonio, and David Forgacs. "Philosophy, Common Sense, Language, and Folklore." *The Gramsci Reader: Selected Writings, 1916-1935*. New York: New York UP, 2000. N. pag. Print.

Mol, Annemarie. "Ontological Politics: A Word and Some Questions." In *Actor Network Theory and After*, edited by Law, John and John Hassard, 74-89. Oxford: Blackwell Publishing/The Sociological Review, 1999.

Related

Hildebrandt, Mireille and Serge Gutwirth. "Public Proof in Courts and Jury Trials: Relevant for pTA Citizens' Juries?" *Science, Technology, & Human Values* 33.5 (2008): 582-604.

Collins, Harry. "Language and Practice." *Social Studies of Science* 41.2 (2011): 271-300.

Week 11 Feminist STS Participation *April 7*

- Barad, Karen. "Scientific Literacy => Agential Literacy=> (Learning? Doing) Science Responsibly." *Feminist Science Studies: A New Generation* Ed. Maralee Mayberry, Banu Subramaniam, and Lisa H. Weasel. New York: Routledge, 2001. 226-46.
- Mayberry, M., B. Subramaniam, and L. H. Weasel. "Adventures Across Natures and Cultures: An Introduction." *Feminist Science Studies: A New Generation* Ed. Maralee Mayberry, Banu Subramaniam, and Lisa H. Weasel. New York: Routledge, 2001. 1-12.
- Wyer, Mary. "Over the edge: developing feminist frameworks in the sciences and women's studies." *Feminist Science Studies: A New Generation*. Ed. Maralee Mayberry, Banu Subramaniam, and Lisa H. Weasel. New York: Routledge, 2001. 72-80.
- Allen, Caitlyn. "What Do You Do over There, Anyway?: Tales of an Academic Dual Citizen." *Feminist Science Studies: A New Generation*. Ed. Maralee Mayberry, Banu Subramaniam, and Lisa H. Weasel. New York: Routledge, 2001. 22-29. Print.
- Subramaniam, Banu. "And the Mirror Cracked: Reflections of Natures and Cultures." *Feminist Science Studies: A New Generation*. Ed. Maralee Mayberry, Banu Subramaniam, and Lisa H. Weasel. New York: Routledge, 2001. 55-62.
- Mayberry, Maralee. "Reproductive and Resistant Pedagogies: The Comparative Role of Collaborative Learning and Feminist Pedagogy in Science Education." *Feminist Science Studies: A New Generation*. Ed. Maralee Mayberry, Banu Subramaniam, and Lisa H. Weasel. New York: Routledge, 2001. 145-156.
- Jones, Leslie S. and Kathryn Scantlebury. "Feminist Leadership in the Academy: Innovations in Science Education." *Feminist Science Studies: A New Generation*. Ed. Maralee Mayberry, Banu Subramaniam, and Lisa H. Weasel. New York: Routledge, 2001. 138-144.

Related

- Bartsch, Ingrid. "Resident Alien: A Scientist in Women's Studies." In *Feminist Science Studies: A New Generation*. Ed. Maralee Mayberry, Banu Subramaniam, and Lisa H. Weasel. New York: Routledge, 2001. 30-34.
- Pinch, Trevor. "Review Essay: Karen Barad, Quantum Mechanics, and the Paradox of Mutual Exclusivity." *Social Studies of Science* 41.3 (2011): 431-441.
- Barad, Karen. "Erasers and Erasures: Pinch's Unfortunate 'Uncertainty Principle'." *Social Studies of Science* 41.3 (2011): 443-454.
- Suchman, Lucy. "Wajcman Confronts Cyberfeminism." *Social Studies of Science* 36.2 (2006): 321-327.

Week 12 Pedagogy *April 14*

- Freire, Paulo. "Chapter 2" & "Chapter 3." *Pedagogy of the Oppressed*. Trans. Myra Bergman Ramos. London: Penguin, 1973. Print.

Traweek, Sharon. "Generating High-Energy Physics in Japan: Moral Imperatives of a Future Pluperfect." *Pedagogy and the Practice of Science: Historical and Contemporary Perspectives*. Ed. David Kaiser. Cambridge, Ma: MIT, 2005. N. pag. Print.

Related

- Downey, Gary Lee. "The Engineering Cultures Syllabus as Formation Narrative: Critical Participation in Engineering Education through Problem Definition." *St. Thomas Law Journal* 5.2 (2008): 101-130.
- Dayé, Christian. "Review Essays: 'According to the Books ...'." *Social Studies of Science* 38.2 (2008): 303-318.
- Fuller, Steve and Sujatha Raman, ed. *Teaching Science and Technology Studies: A Guide for Curriculum Planners*. Blacksburg: Virginia Tech, 1991.

Week 13 Scaling up through history and philosophy Skype interlocutor: Jim Collier (Virginia Tech) April 21

- Shapin, Steven. "Hyperprofessionalism and the Crisis of Readership in the History of Science." *Isis* 96.2 (2005): 238-243.
- Restivo, Sal. "Notes and Queries on Science, Technology and Human Values." *Science, Technology, & Human Values* 6.34 (1981): 20-24.
- Wartofsky, Marx W. "The Critique of Impure Reason II: Sin, Science, and Society." *Science, Technology, & Human Values* 6.33 (1980): 5-23.
- Fuller, Steve. "The Future of Science and Technology Studies." *New Frontiers in Science and Technology Studies*. Cambridge: Polity, 2007. 205-17. Print.
- Pitt, Joseph C. "Standards in Science and Technology Studies." *The Social Epistemology Review and Reply Collective* 23 (2011).
- Collier, Jim. "James H. Collier. Normativity and Nostalgia: A Reply to Pitt."

Week 14 Public Proof/Reassembling/Performance April 28

- Latour, Bruno. "Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern." *Critical Inquiry* 30.2 (2004): 225-248.
- Latour, Bruno. "Conclusion: What Is to Be Done? Political Ecology!"; "Summary of the Argument"; & "Glossary". *Politics of Nature: How to Bring the Sciences into Democracy*. Cambridge, MA: Harvard University Press, 2004. 221-50. Print.
- Callon, Michel, Pierre Lascoumes, and Yannick Barthe. "The Democratization of Democracy." *Acting in an Uncertain World: An Essay on Technical Democracy*. Cambridge, MA: MIT, 2009. 225-54. Print.
- Callon, Michel. "Elaborating the notion of performativity." *Le Libellio d'Aegis* 5.1 (2009): 18-29.

Related

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- Callon, Michel. *The Laws of the Markets*. Oxford: Blackwell/Sociological Review, 1998. Print.
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