

# Problems in Science Studies HSHM 710/HIST 921<sup>1</sup>

Tuesday 1:30-3:20

Class Location:

Prof. Lisa Messeri

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Or by appointment

## Course Description

This course offers an overview of methods, concepts, and themes relevant to the social study of science and technology. We will consider both the history of debates that have shaped the field, often referred to as science studies or STS, emerging areas of inquiry, as well as the range of tools available for undertaking historical and/or ethnographic investigations. We will create a safe space for working through challenging ideas and matters of concern.

## Assessments

### *Weekly Think Pieces*

**No more** than 500 words, due by 5 pm the day before class. These writings might address one particular reading, a theme that cuts across the readings, or points of connection between readings and your area of research. The aims of this exercise are multiple: it will help you get into the habit (or to strengthen your existing habit) of writing regularly and being ready to try out ideas; it will encourage you to deal with the readings in a personally relevant, engaged way; finally, these writings will be the starting point for discussions in class.

### *Discussion Leading + Participation*

You will lead discussion of the readings at least once. Active and constructive participation in class is imperative. Please notify me as soon as possible if you must miss a class.

### *Midterm Essay - What is STS?*

5-7 pages (double spaced). Write an essay that offers one answer to the (broad) question, “What is STS?” Consider your audience to be an advanced undergraduate. You want to describe this academic field and explain why this line of inquiry is helpful for understanding the world. You ought not be exhaustive, but rather focus on one theme, approach, or concept that answers the question. Draw from readings on the syllabus (you may also cite readings not on the syllabus, but this is not required).

### *Final Essay - What is STS otherwise?*

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<sup>1</sup> Syllabus adapted from previous iterations taught by Prof. Joanna Radin

8-10 pages (double spaced). In the second half of the course, we focus on problems the discipline is presently struggling with. I'd like you to create one more week of the syllabus, choosing a topic that we did not discuss in class but is of present concern to STS (or should be). Begin the essay with the title of the session and assigned readings (no need to include "recommended") and write an essay that explains the "problem" and synthetically weaves together the readings. In some ways, this is a longer version of a weekly think piece. We will meet to discuss your chosen topic.

## Course Topics and Readings

All readings will be posted on Canvas. Recommended readings are not required but are listed to provide theoretical background and/or directions for further reading.

Part I: What is STS? The first half of the class is focused on reading some of the foundational theories of STS: SSK, SCOT, ANT, and other TLAs (three letter acronyms) that you'll be fluent in by semester's end. Each week, we'll read some "classic" texts alongside readings that gesture to where the conversation has wandered.

### Jan 15. Introduction to the class: Understanding and Questioning "the Canon"

No readings

### Jan 22. Critical Genealogies: New Origin Stories for STS

*Look at TOC of recent issues of Social Studies of Science; Science, Technology & Human Values; eSTSjournal.org. Begin thinking about what this field of STS is and does.*

Weber, Max. (1958 [1918]) "Science as a Vocation." *Daedalus* 87.1: 111-134.

Arendt, Hannah. (1958). "Prologue" and "Vita Activa and the Human Condition" in *The Human Condition*. University of Chicago Press: 1-12

Fanon, Franz (2008 [1952]). "The Lived Experience of the Black Man" in *Black Skin, White Masks*. Grove: 89-119.

Calvert, Jane and Arie Rip. (2018). "'Things Can be Done Here That Cannot So Easily Be Done Elsewhere': Jane Calvert Talks with Arie Rip." *Engaging STS* 4: 183-201.

Fletcher, Isabel and Adele E. Clarke. (2018). "Imagining Alternative and Better Worlds: Isabel Fletcher Talks with Adele E. Clarke." *Engaging STS* 4: 222-245.

Recommended

Fischer, Michael. (2007). "Four genealogies for a recombinant anthropology of science and technology." *Cultural anthropology* 22.4 (2007): 539-615.

Jasanoff, Sheila. (2016). "The Floating Ampersand: STS Past and STS to Come." *Engaging STS* 2: 227-237.

Fischer, Michael. (2018). "Theorizing STS from Asia: Toward an STS Multiscale Bioecological Framework." *East Asian Science, Technology, and Society* 12(4): 519-540.

**Jan 29. Truth, Knowledge, and Facts**  
***ft Strong Program in the Sociology of Knowledge (SSK)***

Popper, Karl (2005 [1935]). *The Logic of Scientific Discovery*. Routledge. Chp 1, pg 3-26.

Fleck, Ludwik. (1981 [1935]). *Genesis and Development of a Scientific Fact*. University of Chicago Press. Chp 2 & 4, pg 20-52; 82-145

Kuhn, Thomas. (2012 [1962]). "The Resolution of Revolutions." *Structure of Scientific Revolutions*. University of Chicago Press. Pg. 143-158.

Bloor, David. (1991 [1976]). *Knowledge and Social Imagery*. University of Chicago Press. Ch 1, 3-23.

Verran, Helen (2001). "Two Consistent Logics of Numbering" in *Science and an African Logic*. 177-205.

Recommended

Poovey, Mary. (1998) *A history of the modern fact: Problems of knowledge in the sciences of wealth and society*. University of Chicago Press, 1998. Ch 1.

Dorothy Nelkin. (1996). "The Science Wars: Responses to a Marriage Failed." *Social Text*, No.46/47: 93-100.

Steven Shapin. (1995). "Here and Everywhere: Sociology of Scientific Knowledge." *Annu.Rev.Sociol.* 21: 289-321.

Knorr Cetina, Karin (1999). *Epistemic Cultures: How the Sciences Make Knowledge*. Cambridge: Harvard University Press.

Verran, Helen. (2014). "Working With Those Who Think Otherwise." *Common Knowledge* 20(3): 527-539

**Feb 5. Knowers, Actors, and Subjectivities**  
***ft Actor Network Theory (ANT)***

Merton, Robert. (1942). "The Normative Structure of Science." In *The Sociology of Science: Theoretical and Empirical Investigations*. 267-278.

Mulkay, Michael J. (1976). "Norms and ideology in science." *Social Science Information* 15, no. 4-5: 637-656

Callon, M. (1984). "Some elements of a sociology of translation: domestication of the scallops and the fishermen of St Brieuc Bay." *The Sociological Review*, 32, 196-233.

Haraway, Donna Jeanne. (1988) "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." *Feminist Studies* 14: 575-99.

Mitchell, Timothy. (2002). *Rule of Experts: Egypt, Techno-Politics, Modernity*. Berkeley: University of California Press. Chapter 1: "Can the Mosquito Speak?"

Epstein, Steve. (1996). *Impure Science: AIDS, Activism, and the Politics of Knowledge*. UC Press. Ch 6 "Drugs Into Bodies." 208-234.

Kinchy, Abby. (2017) "Citizen Science and Democracy: Participatory Water Monitoring in the Marcellus Shale Fracking Boom." *Science as Culture* 26, no. 1: 88-110.

#### Recommended

Latour, B. (1987). *Science in action: How to follow scientists and engineers through society*. Harvard university press.

Rossiter, Margaret. (1993). "The Matthew Matilda Effect in Science." *Social Studies of Science* 23(2): 325-341

Daston, Lorraine, and Peter Louis Galison. *Objectivity*. New York: Zone, 2007.

Oreskes, Naomi. (1996) "Objectivity or Heroism? On the Invisibility of Women in Science." *Osiris* 11: 87-113.

Shapin, Steven. (2009). *The Scientific Life: A moral history of a late modern vocation*. University of Chicago Press. Chs 1 and 2

## Feb 12. Places and Epistemologies

Latour, Bruno (1988). "Laboratory" and "Centers of Calculation" in *Science in Action*. Cambridge: Harvard University Press.

Knorr Cetina, Karin (1992), "The couch, the cathedral, and the laboratory: on the relationship between experiment and laboratory in science", in Pickering, Andrew, *Science as practice and culture*, University of Chicago Press, pp. 113–138,

Gieryn, Tom F. "Three truth-spots." *Journal of the History of the Behavioral Sciences* 38.2 (2002): 113-132.

Soto Lavaega, Gabriela. (2009) *Jungle Laboratories: Mexican Peasants, National Projects, and the Making of the Pill*. Duke U Press: Ch 1

Agard-Jones, Vanessa. (2013). "Bodies in the System." *Small Axe* 17.3 42 (2013): 182-192.

#### Recommended

Latour, Bruno, & Woolgar, Steve. (1986). *Laboratory life: the construction of scientific facts*. Princeton, N.J.: Princeton University Press.

Kohler, Robert (2002). *Landscapes and labs: Exploring the lab-field border in biology*. University of Chicago Press.

Hayden, Cori. (2003). *When nature goes public: The making and unmaking of bioprospecting in Mexico*. Princeton University Press.

- Park Doing. (2008). "Give Me a Laboratory and I Will Raise a Discipline: The Past, Present, and Future Politics of Laboratory Studies in STS" pp. 279-296, in Hackett et al *The Handbook of Science and Technology Studies*. MIT Press.
- Heggie, Vanessa. (2014). Why Isn't Exploration a Science? *ISIS*, 105(2), 318-334.
- Messeri, Lisa. (2016). *Placing Outer Space*. Duke University Press.

### **Feb 19. Innovation, Maintenance, and Technology ft Social Construction of Technology (SCOT)**

- Bijker, Wiebe. (2010). "How is Technology Made—That is the Question!" *Cambridge Journal of Economics*. 34: 63-76.
- Cowan, Ruth Schwartz. (1987) "The Consumption Junction." In *The Social Construction of Technological Systems* ed. Bijker, Hughes, and Pinch.
- David Edgerton. (2007). *The Shock of the Old: Technology and Global History Since 1900*. Oxford: Oxford University Press. pp: ix-51.
- De Laet, Marianne, and Annemarie Mol. (2000) "The Zimbabwe bush pump mechanics of a fluid technology." *Social studies of science* 30.2: 225-263.
- Landström, Catharina. (2007) "Queering feminist technology studies." *Feminist Theory* 8.1: (2007): 7-26.
- Jackson, S. J. (2014). "Rethinking Repair." In *Media Technologies: Essays on Communication, Materiality, and Society*, edited by Tarleton Gillespie, Pablo J. Boczkowski, and Kristen Foot. Cambridge: MIT Press: 221–40

#### Recommended

- Bijker, W. E., Hughes, T. P., & Pinch, T. J. (Eds.). (1987). *The social construction of technological systems: New directions in the sociology and history of technology*. MIT Press.
- I. Hacking. (1999) *The Social Construction of What?* Cambridge, MA: Harvard University Press.
- Mavhunga, Clapperton Chakanetsa. (2014). *Transient Workspaces: Technologies of Everyday Innovation in Zimbabwe*. MIT Press.
- [themaintainers.org](http://themaintainers.org)

### **Feb 26. Classifications, Social Constructions, and How Science Gives Order ft Co-Production**

- Thomas Gieryn. (1983). "Boundary-Work and the Demarcation of Science from Non- Science: Strains and Interests in the Professional Ideologies of Science." *American Sociological Review*. 48(6): 781-795.
- Geoffrey Bowker and Leigh Star. (1999). *Sorting Things Out: Classification and its Consequences*. Chp. 2.

Bruno Latour. (1993). *We Have Never Been Modern*. Harvard University Press. Pp. 1-12

J.E. Reardon. (2001). "The Human Genome Diversity Project: A Case Study in Co-Production," *Social Studies of Science* 3:357-388.

TallBear, Kim (2013). *Native American DNA: Tribal Belonging and the False Promise of Genetic Science*. Minnesota. Introduction, Chp 1

Angela Willey. (2016). *Undoing Monogamy: The Politics of Science and the Possibilities of Biology*. Ch 2.

#### Recommended

Michel Foucault. (1970) *The Order of Things: An Archaeology of the Human Sciences*. Random House.

Star, S. L., & Griesemer, J. R. (1989). Institutional ecology, translations' and boundary objects: Amateurs and professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39. *Social studies of science*, 19(3), 387-420.

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Part II: What is STS otherwise? The second half of the course examines topics that STS scholars have picked up in recent decades. These are themes relevant for living in the 21<sup>st</sup> century and are instructive in how STS reworks itself to be responsive to contemporary issues. These also represent more experimental approaches, indicative of a reflexivity that is at the heart of STS. STS is its own best critique, so how can we learn from the field itself how to do scholarship otherwise?

### **Mar 5. The Ontological Turn and New Materialisms**

Annemarie Mol. (1999) "Ontological politics. A word and some questions." in *Actor Network Theory and After*, John Law and John Hassard (eds), Malden, MA: Blackwell, pp. 4-89.

Barad, Karen. (2003). "Posthumanist performativity: Toward an understanding of how matter comes to matter." *Signs: Journal of women in culture and society*, 28(3), 801-831.

De la Cadena, M. (2010). Indigenous cosmopolitics in the Andes: Conceptual reflections beyond "politics". *Cultural anthropology*, 25(2), 334-370.

Woolgar, S., & Lezaun, J. (2013). "The wrong bin bag: A turn to ontology in science and technology studies?" *Social studies of science*, 43(3), 321-340.

Woolgar, S., & Lezaun, J. (2015). Missing the (question) mark? What is a turn to ontology? *Social Studies of Science*, 45(3), 462-467.

Paxson, H., & Helmreich, S. (2014). "The perils and promises of microbial abundance: Novel natures and model ecosystems, from artisanal cheese to alien seas." *Social Studies of Science*, 44(2), 165–193.

Recommended

Ian Hacking. (2002) *Historical Ontology*. Springer Netherlands.

Bennett, J. (2009). *Vibrant matter: A political ecology of things*. Duke University Press.  
*Social Studies of Science* 43(3)

### **Mar 26. Affect, Embodiment, and the Feeling of Science and Technology**

Adams, Vincanne, Murphy, Michelle, & Clarke, Adele. (2009). Anticipation: Technoscience, Life, Affect, Temporality. *Subjectivity*, 28, 246-265.

Myers, Natasha. (2008). "Molecular embodiments and the body-work of modeling in protein crystallography." *Social studies of science* 38.2: 163-199.

Mel Chen. (2012) *Animacies: Biopolitics, Racial Mattering, and Queer Affect*, Intro and Chp 5

Alison Kafer, (2013) *Feminist, Crip, Queer*. Bloomington: Indiana U Press. Chp 1 and 6.

Wilson, Elizabeth. (2015). *Gut Feminism*. Duke U Press. Ch 2

Simmons, D. (2016). "Impostor Syndrome, a Reparative History." *Engaging Science, Technology, and Society* 2: 106-127.

Recommended

Ahmed, Sarah. "Affective Economies." *Social Text* 22, no. 2 (2004): 117-39.

Michelle Murphy "Towards Non-innocent Reassemblies" (A comment on D. Simmons)

### **Apr 2. Environmental Risk and Living in the Anthropocene**

Beck, Ulrich. (1987). "The Anthropological Shock: Chernobyl and the Contours of the Risk Society." *Berkeley Journal of Sociology* 32: 153-165.

Fortun, Kim. (2004). "From Bhopal to the informing of environmentalism: risk communication in historical perspective." *Osiris* (2004): 283-296.

Chakrabarty, Dipesh. (2009). "The climate of history: Four theses." *Critical Inquiry* 35.2: 197-222.

Callison, Candice. (2014). "The Inuit Gift." In *How Climate Change Comes To Matter*. Duke University Press. 39-80.

Latour, Bruno. (2017). "Fourth Lecture: the Anthropocene and the Destruction of (the image of) the Globe" in *Facing Gaia*. 111-145.

Olson, Valerie, & Messeri, Lisa. (2015). "Beyond the Anthropocene: un-earthing an epoch." *Environment and Society*, 6 (1), 28-47.

#### Recommended

Mary Douglas. (2002). *Risk and blame: essays in cultural theory*. Routledge.

Haraway, Donna. "Anthropocene, capitalocene, plantationocene, chthulucene: Making kin." *Environmental Humanities* 6.1 (2015): 159-165.

Wylie, Sara. (2018). *Fractivism: Corporate Bodies and Chemical Bonds*. Duke University Press.

### **April 9. Data, Algorithms, and How Computers Make Us**

Turner, Fred. (2006) "How digital technology found utopian ideology: Lessons from the first hackers' conference." *Critical Cyberculture Studies: Current Terrain, Future Directions*.

boyd, danah, & Crawford, Kate. (2012). Critical questions for Big Data: Provocations for a cultural, technological, and scholarly phenomenon. *Information, Communication & Society*, 15(5), 662-679.

Dan Bouk. (2014). *How Our Days Became Numbered*. Chicago. Ch 6.

Radin, Joanna. (2017) "Digital Natives: Indigenous Bodies and Big Data" *Osiris*

Seaver, N. (2017). Algorithms as culture: Some tactics for the ethnography of algorithmic systems. *Big Data & Society*.

Noble, Safiya. (2018) "Searching for Black Girls" in *Algorithms of Oppression*. pg 64-109.

#### Recommended

Medina, E. (2011). *Cybernetic revolutionaries: technology and politics in Allende's Chile*. MIT Press.

Philip, Kavita, Irani, Lilly, & Dourish, Paul. (2010). *Postcolonial computing: A tactical survey*. *Science, Technology and Human Values*, 37(3), 3-29.

Edwards, Paul N. (2010). *A vast machine: Computer models, climate data, and the politics of global warming*. MIT Press.

### **Apr 16. Science Fictions, Social Realities**

Haraway, Donna. (1987) "A manifesto for cyborgs: Science, technology, and socialist feminism in the 1980s." *Australian Feminist Studies* 2.4: 1-42.

Kirby, David. (2003) "Science Consultants, Fictional Films, and Scientific Practice." *Social Studies of Science* 33, no. 2: 231-68.



Hess, David J. (2009) "The potentials and limitations of civil society research: Getting undone science done." *Sociological Inquiry* 79.3: 306-327.

Croissant, Jennifer L. (2014) "Agnotology: Ignorance and Absence or Towards a Sociology of Things That Aren't There." *Social Epistemology* 28.1: 4-25.

Jasanoff, Sheila. (2015) "Future imperfect: Science, technology, and the imaginations of modernity." *Dreamscapes of modernity: Sociotechnical imaginaries and the fabrication of power*: 1-47.

Tresch, John. (2016) "'Matter No More': Edgar Allan Poe and the Paradoxes of Materialism." *Critical Inquiry* 42.4: 865-898.

### **April 23: STS in the age of Post-Truth**

Latour, Bruno. (2003) "Do you believe in reality? News from the trenches of the science wars." *Philosophy of Technology: The Technological Condition*, Blackwell Publishing 126-137.

Kofman, Ava. 2018. "Bruno Latour, the Post-Truth Philosopher, Mounts a Defense of Science." *NYTimes*

Sismondo, S. (2017). Post-truth? *Social Studies of Science*, 47(1), 3–6.

Collins, H., Evans, R., & Weinel, M. (2017). STS as science or politics? *Social Studies of Science*, 47(4), 580–586.

Sismondo, S. (2017). Casting a wider net: A reply to Collins, Evans and Weinel. *Social Studies of Science*, 47(4), 587–592.

Lynch, M. (2017). STS, symmetry and post-truth. *Social Studies of Science*, 47(4), 593–599.

Radin, Joanna. (2019). "Alternative Facts and *States of Fear*: Reality and STS in an age of Climate Frictions." *Minerva*.