Knowledge/Power/Practice in Science, Technology & Medicine

Paul N. Edwards and Alexandra Minna Stern
Winter 2014
office hours: by appointment

Mondays 1-4pm
2448 Mason Hall

This graduate readings seminar provides a comprehensive introduction to the major themes and issues in Science & Technology Studies (STS, or S&TS). Drawing on scholarship in history, sociology, anthropology, American studies, and information studies, the course mixes theoretical material with more empirically oriented studies. The course focuses particularly on the relation between social, political, and cultural contexts and the development of ideas, practices, tools, and objects within science, technology, and medicine.

Work for the seminar includes reading approximately 200-350 pages per week, brief weekly response papers, two discussion papers based on a week’s reading, and a final project of 10-12 pages.

This course is required for students enrolled (or planning to enroll) in the STS Graduate Certificate Program. While some background in science, technology and/or medicine is helpful, the course does not require any particular expertise.

Requirements: Assignments and Expectations

Reading

All required readings except books are available for download through the course CTools site.

Students should purchase the following books. Copies are also on reserve at Hatcher Library.


Optional for purchase (but this is an STS classic, and you should probably own it):


Those interested in overviews of the field (or its subfields) may find the following texts useful:


**Writing**

There are three types of writing assignment:

1) **Weekly responses.** Every week — except for the ones in which you are leading discussions and doing the recommended reading — you must turn in a 400-600 word response to the required reading. This should be double-spaced. Rather than merely summarize the reading, you should engage with it analytically. The electronic version of this response is due no later than 8 a.m. on the day of the seminar, submitted to that week’s Resources folder in CTools. Also bring 1 printed copy to class.

You can skip one response paper between February and April. No skips in January.

SEE CTOOLS RESOURCES FOLDER FOR EXAMPLES OF EXCELLENT RESPONSE PAPERS.

2) **Discussion papers.** Two are due during the semester. Your due dates will be determined on the first day of class. See below under “Discussion” for further details.

3) **Final project.** Your final project will be a paper of around 3000 words (10-12 pp). The choice of topic and format is up to you. You may write a literature review, a grant proposal, an analysis of current events, or whatever other format best suits your professional training and needs. Whatever you choose, you must directly engage with some aspect of the STS literature. This assignment has three parts:

   (a) A proposal that clearly describes your topic and how it relates to course materials and concepts. This should consist of a 300-500 word narrative description, along with a preliminary bibliography of 5-7 works. We strongly recommend that you discuss your ideas with one of us before submitting this proposal. This is due on March 24th in class (bring two printed copies).
A good draft of the paper is due by email on April 18\textsuperscript{th} by midnight to the professors and all class members. This should be at least 1500 words, and should include a full bibliography with annotations of 50-70 words for each item. You are expected to read everyone’s draft in order to have an effective wrap-up discussion on April 21\textsuperscript{st}, the last day of class. We will divide the class up into thematic clusters; you will be providing substantial written comments on the other papers in your cluster.

The final version, edited, revised, and proofread, is due by email to the professors by April 23\textsuperscript{rd} at midnight.

Discussion

This is a discussion seminar. Its success depends on the commitment, involvement, and timeliness of all participants. Therefore, you are expected to arrive in class on time and thoroughly prepared to participate actively in all discussions.

Cold calling: to encourage full involvement and preparation, the professor will “cold call” several students during each class. This means that we will ask you a direct question on the readings; we will expect answers that demonstrate your knowledge of the material and your ability to draw interesting connections from them to other readings. This practice is not intended to embarrass anyone. Instead, its goal is to help you prepare for class and to learn to think and talk “on your feet,” a crucial skill required by almost any profession.

We will grade you on both the regularity and the quality of your participation, including your responses to cold calls. Attendance without regular, thoughtful, constructive participation is not acceptable.

Leading discussion: Twice during the term, you will help lead class discussion. This will involve:

- Selecting and reading one of the starred books or 3 of the starred articles from the “recommended reading” list for that week.
- If reading a book, find 2 scholarly reviews of the book.
- Writing an 800-1200 word “think piece” that reviews the book and/or articles and relates them to the primary assigned reading. You must pre-circulate this piece to the entire class no later than 5 pm on the day before the seminar (Sunday). Bring a printed copy to class, stapled to a printed copy of the scholarly book reviews (if applicable).
- Meeting with the other student(s) presenting in that session and collectively preparing a one-page handout as an aid to class discussion. This handout should list what you consider to be the three or four most interesting analytical points for the week’s reading, including both the main assignment and the recommended reading you did. The handout should also offer two questions designed to provoke interesting, wide-ranging general class discussion. The questions should focus on the concepts, theories, or historiographical frames from the readings.
- Distribute hard copies of this handout to all class members at the start of the seminar.
- At the beginning of that class session, presenters will jointly spend no more than 20 minutes outlining the themes from the common readings and elaborating your discussion questions. Presentations should draw upon the recommended readings as appropriate, but they should NOT engage in extended reviews of those readings (that’s what the pre-circulated “think pieces” are for). All presenters should participate in the presentation and be involved in leading the discussion.
• **Presentations will be timed.** You will receive a 5-minute warning at the 15-minute mark. A timer will go off at the 20-minute mark, and you must stop talking then. Again, this is not intended to embarrass you. Rather, it is meant to prepare you for professional presentations, which are always time-limited. Speaking concisely and effectively is an important skill in any profession.

**Grading breakdown**

- Weekly responses: 25 percent
- Discussion “think piece” and presentation: 30 percent (15 percent each)
- Participation: 25 percent
- Final paper (including prep stages and peer comments): 20 percent

All assignments must be turned in on time. Lateness is reflected in the final course grade.

**Science, Technology, Medicine & Society Colloquium**

Everyone is welcome and encouraged to attend the Science, Technology, Medicine, and Society (STeMS) faculty-graduate student colloquium. STeMS meets 4-6 times each semester, usually on Monday afternoons from 4-5:30 (usually but not always in 1014 Tisch Hall).

Three semesters of attendance at the STeMS colloquium are required for the STS Graduate Certificate Program. To receive credit toward the certificate, you must register for Rackham 571 (a 1-credit course) each semester.

**Course Schedule**

**January 13 — Week 1. Introduction: Social Construction of Scientific Knowledge**  
**Alex & Paul**

Harry Collins and Trevor Pinch, *The Golem: What You Should Know about Science*  

**Recommended:**  
***Michael Lynch, Scientific Practice and Ordinary Action: Ethnomethodology & Social Studies of Science***  
***Steven Shapin, A Social History of Truth***  
***Harry Collins, Changing Order: Replication and Induction in Scientific Practice***  
Barry Barnes, *Scientific Knowledge: A Sociological Analysis*  
Trevor Pinch, *Confronting Nature*

Skim: Paul N. Edwards, “How to Read a Book”

**STeMS Colloquium 4-5:30 pm**  
Suman Seth, *Enlightenment Race Science in the Colonies: Edward Long and the History of Jamaica*
January 20 – no class, attend MLK Jr. events

January 27 — Week 2. Social Construction of Technology (SCOT)
Alex & Paul

Thomas J. Misa, *Leonardo to the Internet*

Recommended:
***Thomas P. Hughes, Networks of Power***
***David Noble, Forces of Production***
***Wiebe Bijker, *Of Bicycles, Bakelites, and Bulbs: Toward a Theory of Sociotechnical Change***
***Nelly Oudshoorn & Trevor Pinch, *How Users Matter: the Co-Construction of Users and Technology***
***Claude Fischer, *America Calling: A Social History of the Telephone to 1940***
***Shoshanna Zuboff, *In the Age of the Smart Machine***

February 3 — Week 3. Social Construction of Medicine (SCOM)
Alex & Paul

Michelle Murphy, “The ‘Elsewhere within Here’, and Environmental Illness, or How to Build Yourself a Body in a Safe Space,” *Configurations* 8:1 (2000), 87-120
Geoffrey C. Bowker and Susan Leigh Star, *Sorting Things Out*, Chapters 1, 3, 7-8 (CTools)
[New York Times article on ICD-10](https://www.nytimes.com/)

Recommended:
***Steven Epstein, *Inclusion: The Politics of Difference in Medical Research***
***Robert Aronowitz, *Making Sense of Illness: Science, Society, and Disease***
***Conevery Bolton Valencius, *The Health of the Country how American Settles understood themselves and their land***

February 10 — Week 4. Actor-Network Theory
Alex & Paul


Recommended:
***Bruno Latour, Science in Action: How to Follow Scientists and Engineers through Society
***John Law, Aircraft Stories: Decentering the Object in Technoscience
***Stefan Helmreich, Silicon Second Nature: Culturing Artificial Life in a Digital World (2nd edition)
John Law and John Hassard (eds), Actor Network Theory and After
Bruno Latour, Gifford Lectures on Natural Religion (2013)
Bruno Latour, We Have Never Been Modern

STeMS Colloquium 4-5:30 pm
Jeffrey Sklansky, Money in Motion: Circulation in Early Modern Science, Political Economy, and Debates Over Currency and Banking.

February 17 — Week 5. Science, Expertise, and Democracy in Comparative Perspective
Shobita Parthasarathy


Recommended:
BOOKS:
**February 24 — Week 6. Law in STS, STS in Socio-legal Studies**  
Anna Kirkland

Sheila Jasanoff, *Science at the Bar: Law, Science, and Technology in America* (1994), Chapters 1, 2, 3, and 10 and browse the other topical chapters based on your interests.


**Applications/Recommended:**


March 3 – no class, winter break

March 10 — Week 7. Anthropology and STS
Liz Roberts (.5 session)


Recommended:

***Margaret Lock Encounters with Aging: Mythologies of Menopause in Japan and North America (Berkeley: University of California Press, 1995)


March 17 — Week 8. Biopower, Biopolitics, and STS
Alex Stern


Recommended:

***Michel Foucault, The history of sexuality volume I (New York: Pantheon, 1978)


Thomas Lemke, Biopolitics: An Advanced Introduction: Medicine, Technoscience, and Health (New York: NYU Press, 2011)

STeMS Colloquium 4-5:30 pm
Joy Knoblauch, The Work of Diagrams: Translations from Factory to Hospital
March 24 — Week 9. Race, Gender, and Digital Technologies  
Lisa Nakamura (.5 session)

danah boyd, “White Flight From Networked Publics,” in Race After the Internet

Recommended:
***Lisa Nakamura, Digitizing Race, University of Minnesota Press, 2008
***Jenna Burrell, Invisible Users: Youth in the Internet Cafes of Urban Ghana (The MIT Press)
***Sadie Plant, Zeroes and Ones
Chow-White and Nakamura, eds., Race After the Internet (Routledge, 2011)

March 31 — Week 10. High Modernity: Radical Simplification, State Power, and Development
Perrin Selcer

Perrin Selcer, book proposal and “The Soil Map of the World and the Politics of Scale,” manuscript chapter from Constructing Spaceship Earth

Recommended:
Nils Gilman, Mandarins of the Future: Modernization Theory in Cold War America (Baltimore: Johns Hopkins UP, 2003)

STeMS Colloquium 4-5:30 pm
Clapperton Mavhunga, What Can STS Do for Africa that Marx Couldn’t?
April 7 — Week 11. Feminist Bioscience Studies
Sari Van Anders

van Anders, S. M. (2013). “Beyond masculinity: Testosterone, gender/sex, and human social behavior in a comparative context.” Frontiers in Neuroendocrinology 34, 198-210 (and also see corrigendum – should be online soon – for Figure 1).

Recommended:

April 14 — Week 12. Technology and Medicine
Joel Howell


Recommended:
***Keith Wailoo, Drawing Blood: Technology and Disease Identity in Twentieth-Century America (Baltimore: Johns Hopkins University Press, 1999)

April 21 — Week 13. Wrap-up discussion
Alex & Paul

Assignment:
· Read pre-circulated drafts of final paper
· Provide written comments on drafts in your theme cluster
· Come to class prepared to discuss the “big picture” that emerges from our semester (including the readings you did for your paper)
View Medicine Science Technology PPTs online, safely and virus-free! Many are downloadable. Learn new and interesting things. Get ideas for your own presentations. Share yours for free! Famous Women in Science, Technology, Engineering, Mathematics, and Medicine http://awis.org. HEALTH TECHNOLOGY Medicines, Vaccines, Laboratory, Devices, Equipment from policy to practice Zafar Mirza, Houda Langar, Nabila Metwalli, Adham Ismail. HEALTH Technology Medicines, Vaccines, Laboratory, Devices, Equipment from policy to practice Zafar Mirza, Houda Langar, Nabila Metwalli, Adham Ismail. HEALTH TECHNOLOGY Medicines, Vaccines, Laboratory, Devices, Equipment from policy to practice Zafar Mirza, Houda Langar, Nabila Metwalli, Adham Ismail. We shortlisted some of the greatest ideas and medical technology developments that could give us a glimpse into the future of medicine, but we found so many that we had trouble fitting them into one article. Here is a curated list of ten spectacular medical technology innovations, from augmented reality to artificial intelligence and tissue engineering. See more ideas about inventions, technology, medical practice. Ideas, designs, prototypes, devices, inventions, research, technology, techniques, & discoveries that will impact our way of life, medical practice, or, the evolution of the scientific world. Advancements that will, hopefully, be beneficial to humankind. P. Site Suspended - This site has stepped out for a bit. Bones & X-rays: Had a bad break that you want to show off? Show the world what’s going on under that cast. Send the digital file of your x-ray to Castloo & they will send you back your break in print, ready to be applied directly to your cast.

Knowledge/Power/Practice in Science, Technology & Medicine. Paul N. Edwards and Alexandra Minna Stern Winter 2014. ofce hours: by appointment. Mondays 1-4pm 2448 Mason Hall This graduate readings seminar provides a comprehensive introduction to the major themes and issues in Science & Technology Studies (STS, or S&TS). Drawing on scholarship in history, sociology, anthropology, American studies, and information studies, the course mixes theoretical material with more empirically oriented studies. Joel Howell, Technology in the Hospital: Transforming Patient Care in the Early Twentieth Century (Baltimore: Johns Hopkins University Press, 1996). Sheila Jasanoff, Science at the Bar: Law, Science, and Technology in America (Harvard: Harvard University Press, 1997). Worldwide use of computer technology in medicine began in the early 1950s with the rise of the computers. In 1949, Gustav Wagner established the first professional organization for health informatics in Germany. Health informatics also called Health Information Systems is a discipline at the intersection of information science, computer science, and health care. It concerns with the resources, devices, and methods required for optimizing the acquisition, storage, retrieval, and use of information in health and biomedicine.