This graduate readings seminar provides a comprehensive introduction to the major themes and issues in the field of Science & Technology Studies (STS, or S&T). Drawing on scholarship in history, sociology, anthropology, and information studies, we will mix theoretical material with more empirically oriented studies. The course will focus particularly on the relation between social, political, and cultural contexts and the development of ideas, practices, tools, and objects within science, technology, and medicine. While some background in science, technology and/or medicine is helpful, this course does not require any particular expertise.

Work for the seminar will include 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 about 15 pages.

Requirements: Assignments and Expectations

Reading

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

Students should purchase the following books:


Steven Epstein, *Inclusion: the politics of difference in medical research* (University of Chicago Press, 2007)

Michelle Murphy, *Sick Building Syndrome and the Problem of Uncertainty: Environmental Politics, Technoscience, and Women Workers* (Duke University Press, 2006)


**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 CTools. Also bring 1 printed copy to class.*

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

SEE CTOOLS SITE 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 precise choice of topic and format is up to you. You may choose to write this as a literature review, a grant proposal, an analysis of current events, or whatever other format suits your professional training or needs. You must, however, receive our approval for the format you choose. Whatever you choose, you must directly engage with some aspect of the STS literature, and must read additional material (i.e., articles and/or books beyond those assigned in the course).

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. **Due to both instructors by email NO LATER THAN MONDAY, MARCH 5TH AT 5 pm.** We strongly recommend that you discuss your ideas with one of us before submitting this proposal.
(b) A good draft of the paper is **due by email on Tuesday, April 10th.** 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 12th, 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.

(c) The **final version**, edited, revised, and proofread, is **due to both instructors by email NO LATER THAN TUESDAY April 17th AT 5 pm.**

**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 professors 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 single out or 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 from the “recommended reading” list for that week.
- Finding 2 scholarly reviews of the book.
- Writing an 800-1200 word “think piece” that reviews the book and relates it to the assigned reading. **You must pre-circulate this piece to the entire class no later than 5 pm on the day before the seminar. Bring a printed copy to class, stapled to a printed copy of the scholarly book reviews.**
- 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: 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 will be reflected in the final course grade.

Science, Technology, Medicine & Society colloquium series

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).

Students are also encouraged (but not required) to attend colloquia of the UM Science, Technology & Public Policy Program. These usually meet on Monday afternoons 4-5:30 in the Betty Ford Classroom, 1110 Weill Hall, Ford School of Public Policy.

Consult the STS program website for a list of Winter 2012 events.
Course Schedule

1/5: Introduction

Paul N. Edwards, “How to Read a Book”

1/12: Week 2. Some Empirical Foundations

Harry Collins and Trevor Pinch, The Golem: What You Should Know about Science
Thomas J. Misa, Leonardo to the Internet

No weekly response due

1/19: Week 3. Sociology of Scientific Knowledge (SSK) and Social Construction of Technology (SCOT)

SSK:
Steven Shapin and Simon Schaffer, Leviathan and the Air-Pump (Chicago: University of Chicago Press, 1985), pp. 3-79 and 332-344

SCOT:

Recommended:
Science/SSK:
•••Michael Lynch, Scientific Practice and Ordinary Action: Ethnmethodology & 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

Technology/SCOT:
•••Thomas P. Hughes, Networks of Power
•••David Noble, Forces of Production
•••Ruth Oldenziel, Making Technology Masculine: Men, Women, and Modern Machines in America, 1870-1945
•••Susan J. Douglas, Inventing American Broadcasting, 1899-1922
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*

1/26: Week 4. Actor-Network Theory


**Recommended:**
- Bruno Latour, *Science in Action: How to Follow Scientists and Engineers through Society*
- John Law, *Aircraft Stories: Decentering the Object in Technoscience*
- John Law and John Hassard (eds), *Actor Network Theory and After*
- Bruno Latour, *We Have Never Been Modern*

**For the curious and committed:**

2/2: Week 5. Experts, Publics, and Trust


Michelle Murphy, *Sick Building Syndrome and the Problem of Uncertainty* (Duke University Press, 2006)

**Recommended:**
- John Carson, *The Measure of Merit: Talents, Intelligence, and Inequality in the French and American Republics, 1750-1940*
2/9: Week 6. Constructions of Medicine and Health


Steven Epstein, Inclusion: The Politics of Difference in Medical Research (Chicago, 2007), Introduction, Chapters 1-3, 7, 10, Conclusion

Recommended:

•••Alexandra Stern, Eugenic Nation: Faults and Frontiers of Better Breeding in Modern America
•••Charis Thompson, Making Parents: The Ontological Choreography of Reproductive Technologies
•••Shobita Parthasarathy, Building Genetic Medicine: Breast Cancer, Technology, and the Comparative Politics of Health Care
•••Joel Howell, Technology in the Hospital: Transforming Patient Care in the Early Twentieth Century
•••Charles Rosenberg, The Cholera Years OR The Care of Strangers

Marc Berg, Rationalizing Medical Work: Decision-Support Techniques and Medical Practices

Martin Pernick, The Black Stork: Eugenics and the Death of “Defective” Babies in American Medicine and Motion Pictures since 1915

Adele E. Clarke, Disciplining Reproduction: Modernity, American Life Sciences, and the Problem of Sex

2/16: Week 7. Cyborgs


Paul N. Edwards, The Closed World: Computers and the Politics of Discourse in Cold War America, Preface and Chapters 1-2, 5, 8, and 10 (pp. 1-73, 147-173, 239-273, 303-351)
Recommended:

- Donna Haraway, *Modest_Witness@Second_Millennium.FemaleMan_Meets_Oncomouse: Feminism and Technoscience*
- Chris Hables Gray, ed., *The Cyborg Handbook*
- Lucy Suchman, *Human-Machine Reconfigurations: Plans and Situated Actions*

2/23: Week 8. Technopolitics


Recommended:

- Ken Alder, *Engineering the Revolution*
- Donald MacKenzie, *Inventing Accuracy*
- Toby C. Jones, *Desert Kingdom: How Oil and Water Forged Modern Saudi Arabia*
- Sara B. Pritchard, *Confluence: The Nature of Technology and the Remaking of the Rhône*
- Thomas J. Misa, *A Nation of Steel*
- Judith Schueler, Materialising Identity: the Co-Construction of the Gottard Railway and Swiss National Identity


Forum on *Impossible Engineering in History and Technology*

Recommended:

- Edwin Hutchins, *Cognition in the Wild*
- Peter Galison, *Image and Logic: A Material Culture of Microphysics*
- Karin Knorr-Cetina, *Epistemic Cultures: How the Sciences Make Knowledge*
- Pamela Smith, *The Body of the Artisan: Art and Experience in the Scientific Revolution*
- James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*

3/15: Week 10. Circulations


**Recommended:**
- Nancy Hunt, *A Colonial Lexicon*
- Adriana Petryna, *When Experiments Travel: Clinical Trials and the Global Search for Human Subjects*
- David Arnold, *Colonizing the Body: State Medicine and Epidemic Disease in Nineteenth-Century India*
- Megan Vaughan, *Curing Their Ills: Colonial Power and African Illness*
- Myron Echenberg, *Plague Ports: The Global Urban Impact of Bubonic Plague*
- Marcia Inhorn, *Local Babies, Global Science: Gender, Religion, and In Vitro Fertilization in Egypt*


*NOTE: MacKenzie will be this year's UM STS Program Distinguished Speaker, appearing on Friday, March 23, the day after this session. Details TBA.*

**Recommended:**
- Karen Ho, *Liquidated: An Ethnography of Wall Street*
- Michel Callon, ed., *The Laws of the Market*
- Callon, Millo, and Muniesa, eds., *Market Devices*

**3/29: Week 12. Infrastructure**


**Recommended:**
- Geoffrey C. Bowker and Susan Leigh Star, *Sorting Things Out*
- Stephen Graham and Simon Marvin, *Splintering Urbanism*
- Thomas Parke Hughes, *Networks of Power: Electrification in Western Society, 1880-1930*
- Janet Abbate, *Inventing the Internet*
- Alfred Dupont Chandler and James W. Cortada, *A Nation Transformed by Information*
- Bruno Latour, *Paris: Invisible City*
- Lawrence Busch, *Standards: Recipes for Reality*

**4/5: Week 13  Carbon Democracy**


**No discussion leaders/papers this week**

**4/12: Week 14. Wrap-up discussion**

**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)
Early Science and Medicine is a peer-reviewed international quarterly dedicated to the history of science, medicine and technology from the earliest times through to the end of the eighteenth century. The need to treat in a single journal all the elements of continuity and interconnectedness, and it encourages their diachronic study from a variety of viewpoints, including commented text editions and monographic studies of historical figures and scientific questions or practices.