

Foundations of Science and Technology Studies (STS)

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Overview

Experts speak in the name of our societies' most powerful institutions, such as science, engineering, medicine, and finance. They make and disseminate knowledge and technologies, shaping how we all see and act in the world. How have experts come to play such an important role in our society and what are the consequences?

This course is an introduction to Science and Technology Studies (STS), a lively interdisciplinary field dedicated to studying the social worlds of experts. We will draw from approaches such as the sociology of knowledge, actor-network theory and social shaping of technology in order understand today's most challenging issues, such as climate change, financial crises or revolutions in biotechnology.

This is 'classic' seminar style course, focused on discussing close readings of key texts. The course begins from STS' foundations in sociology, philosophy and history and works its way forward through the advances and debates in topics, concepts and methods to arrive at the contemporary field. The final project is a group based literature review of a new or old topic, issue, theory, or method within STS.

Expectations

All students are expected to:

- come to class having finished the assigned readings;
- come to class with questions, argument and viewpoints to contribute to the discussion of those readings;
- participate fully in group discussions, neither dominating nor allowing others to carry the intellectual load;

Requirements for all students:

- A two-page summary paper for each of the three books we will read in the class. The electronic version of this response is due no later than 8 a.m. on the day of the seminar, submitted via email. Please also bring a printed copy to class for yourself.
- Group Final Project. The final project will be a group paper 3000-4000 words in length. The choice of topic is up to your group, but will collectively explore how STS has approached an empirical, theoretical or methodological topic. Format is also up to your group, and I encourage you to choose whichever format is most useful in developing your professional skills. Options include: book review, grant, fellowship, or thesis proposal; bibliographic review essay; or preliminary research paper.

- This assignment has three parts:
 - 300-500 word proposal, clearly describing the topic and how it relates to course materials and concepts, is due in class on **Week 5**. Please submit by email.
 - A class presentation **Week 10**
 - The final version, edited, revised, and proofread, is due on **March 17th**. Please submit by email.

Evaluation

| | |
|---|------|
| Discussion, Participation, Paper Presentation | 20% |
| Summary Papers (3) | 30% |
| Group Paper (3 parts + presentations) | 50 % |

Please note that no late assignments are accepted, unless you have a serious reason. Discuss with me.

Readings:

1) There are four required books (primary texts):

Sismondo, S. (2009). *An Introduction to Science and Technology Studies*. Oxford, Blackwell. [there is an older edition, try to get the 2009 version or '2nd Edition']

Kuhn, T. S. (1962). *The Structure of Scientific Revolutions*. Chicago, Chicago University Press. [We are reading the '3rd Edition']

Shapin, S. and S. Schaffer (1985). *Leviathan and the air-pump: Hobbes, Boyle and the Experimental Life*. Princeton, N.J., Princeton University Press.

Bowker, G. C. and S. L. Star (1999). *Sorting Things Out: Classification and its Consequences*. Cambridge, Mass., MIT Press.

All other readings will be made available online.

Meeting & Assignment Summary

| Week | Class | Tuesday | Thursday | Due |
|------|------------------------------------|---------------|---------------|----------------------------------|
| 1 | Introduction | No Readings | No Class | -- |
| 2 | Exemplars and Classics | Readings | Readings | -- |
| 3 | Revolutions | Readings | Project | Kuhn Summary (Tues) |
| 4 | Strong Programme | Readings | Project | Shapin & Schaffer Summary (Tues) |
| 5 | Lab Studies | Readings | Project | Proposal (Thurs) |
| 6 | Objectivity | Project | Readings | -- |
| 7 | ANT I & II | Readings | Readings | -- |
| 8 | Standardization and Classification | Readings | Project | Bowker & Star Summary (Tues) |
| 9 | The Social | Project | Readings | Introduction (Tues) |
| 10 | Presentations | Presentations | Presentations | -- |

Final: March 17th

Week One – Introduction (Tuesday Meeting, No Class Thursday)

This course is about careful reading of seminal texts. The key to success in this class will be close reading and careful discussion. Read this guide by Paul Edwards to understand how to get the most out of ‘reading a book’:

<http://pne.people.si.umich.edu/PDF/howtoread.pdf>

Week Two – Exemplars & Classics (Readings discussed on Tues & Thurs)

TUESDAY

Gieryn, T. F. (1983). "Boundary-Work and the Demarcation of Science From Non-Science: Strains and Interests in Professional Ideologies of Scientists." *American Sociological Review* **48**(6): 781-795.

Hacking, I. (1995). The looping effects of human kinds. *Causal cognition: A multidisciplinary approach*, 351-83.

Star, S. L. (1999). "The Ethnography of Infrastructure." *American Behavioral Scientist* **43**: 377-391.

Sergio Sismondo, *An Introduction to Science and Technology* Chapter.1

THURSDAY

Philosophy

Popper, K. (1953). *Science: Conjectures and refutations*.

History

Lovejoy, A. O. (2011 [1936]). The great chain of being: A study of the history of an idea, Transaction Publishers. (Introduction)

Sociology

Robert Merton, “Science and the Social Order” **and** “The Normative Structure of Science,” in *The Sociology of Science* (Chicago: University of Chicago Press, 1973) (orig. 1938/1942), pp. 254-78.

Sergio Sismondo, *An Introduction to Science and Technology* Chapter.3

Week Three -- Progress, revolution and paradigm (Readings Discussed Tuesday)

Kuhn, T. S. (1962) *The Structure of Scientific Revolutions*. Chicago, Chicago University Press. (Read all, including preface and postscript).

Sergio Sismondo, *An Introduction to Science and Technology Studies* (Oxford: Blackwell, 2009), Chapters. 2

Summary Paper 1 Due Tuesday

Week Four -- ‘The Strong Programme’ (Readings Discussed Tuesday)

Shapin, S. and S. Schaffer (1985). Leviathan and the air-pump: Hobbes, Boyle and the Experimental Life. Princeton, N.J., Princeton University Press.

Sergio Sismondo, *An Introduction to Science and Technology Studies* (Oxford: Blackwell, 2009), Chapter. 5

Summary Paper 2 Due Tuesday

Week Five - Lab Studies and Practice (Readings Discussed Tuesday)

Latour, Bruno and Steve Woolgar (1986 [1979]) *Laboratory Life: The Construction of Scientific Facts* (Princeton University Press). **Read Introduction and Chapter 2 (“An Anthropologist Visits the Laboratory”) (pages 11-14, 43-90).**

Latour, B. (1987). Science in action: how to follow scientists and engineers through society. Cambridge, Mass., Harvard University Press. **Read Chapter 2 p.75-116**

Knorr-Cetina, K. (1999). Epistemic Cultures: How the sciences make knowledge. Cambridge, MA, Harvard University Press. (pp.26-46)

Goodwin, C. (1994). "Professional Vision." American Anthropologist **96**(3): 606-633.

Sergio Sismondo, An Introduction to Science and Technology Studies (Oxford: Blackwell, 2009), Chapter. 10

Proposal Due Thursday

Week Six - Objectivity, Visualization, Quantification (Readings Discussed Thurs)

Lorraine Daston and Peter Galison, "The Image of Objectivity," Representations 40 (1992): 81-128.

Vertesi, J. (2012). "Seeing like a Rover: Visualization, embodiment, and interaction on the Mars Exploration Rover Mission." Social Studies of Science 42(3): 393-414.

Martin, A. and M. Lynch (2009). "Counting Things and People: The Practices and Politics of Counting." Social Problems **56**(2): 243-266.

Sergio Sismondo, An Introduction to Science and Technology Studies (Oxford: Blackwell, 2009), Chapter. 12

Week Seven Actor-Network I & II (Readings Tues & Thurs)

TUESDAY

Callon, M. (1986). Some elements of a sociology of translation: Domestication of the scallops and the fisherman. Power, Action and Belief. J. Law and P. Kegan, Routledge.

Latour, B. (1991). Technology is society made durable. A sociology of monsters: Essays on power, technology and domination. J. Law. London, UK, Routledge.

Sergio Sismondo, An Introduction to Science and Technology Studies (Oxford: Blackwell, 2009), Chapter. 8

THURSDAY

Latour, B. (1983). Give Me a Laboratory and I Will Raise the World. Science Observed. K. Knorr-Cetina and M. Mulkay. Beverly Hills, Sage.

Latour, B. (1999). Circulating reference: Sampling the soil in the Amazon forest. *Pandora's hope: essays on the reality of science studies*. Cambridge, Mass.: Harvard University Press.

Week Eight Categories & Standardization (Readings Discussed Tuesday)

Bowker, G. C. and S. L. Star (1999). Sorting Things Out: Classification and its Consequences. Cambridge, Mass., MIT Press.

Summary Paper 3 Due

Week Nine - The Sciences of the Social (Readings Discussed Thursday)

Sarah Igo, The Averaged American: Surveys, Citizens and the Making of a Mass Public (Cambridge:Harvard University Press, 2007) (Chapter 5&6)

Epstein, S. (2007). Inclusion: The Politics of Difference in Medical Research. Chicago, University of Chicago Press. (Selections)

Ribes, D. (2014). Ethnography of Scaling, Or, How to fit a national research infrastructure in the room Computer Supported Cooperative Work (CSCW'14), ACM: 158-170.

Sergio Sismondo, An Introduction to Science and Technology Studies (Oxford: Blackwell, 2009), Chapter. 14, 15, 16 (skim)

Introduction Due Tuesday

Week 10 - Presentations

PRESENTATIONS!

Key STS Resources

STS is a book culture; you will find that books do a great deal of the intellectual labor of the field. The various editions of the STS handbooks are particularly useful.

Add @sciencemagazine, @NYTimesScience and/or @NatureMagazine to your Twitter feed and tune into current science news to find an area, controversy, or case that interests you. Browse online resources for STS bibliographies on topics that you get excited about. The Syllabus Collection on the 4S website (4sonline.org) or the STS Wiki, (stswiki.org) both have terrific lists of readings and writing topics that can inspire.

Primary Journals:

Social Studies of Science (SSS <http://sss.sagepub.com/>)

Science, Technology, and Human Values (ST&HV sth.sagepub.com/)

Science Studies

Science as Culture (cultural studies of science)

Science Communication public understanding of science)

Science and Public Policy (policy issues)

Public Understanding of Science

Minerva (gender and science)
Configurations (science, art, and literature)

Primary Conferences & Professional Organizations:

Society for the Social Studies of Science (4S <http://4sonline.org/>)

(Many 'sections' within the national associations of history, philosophy, sociology, anthropology, communications, etc)

Listservs and Newsletters

Sign up for the monthly newsletter of 4S Technoscience

(<http://www.4sonline.org/technoscience/>)

Sign up for STSGrad google group, where many conferences, events and opportunities are posted. (<http://groups.google.com/group/STSGRAD>)