Science, Technology, and Society One is a multi-disciplinary team-taught course, designed to serve as a gateway to the STS program at Stanford. The STS program operates at the intersection of science, technology and society; it has been cast as the interdisciplinary “liberal arts” for the twenty-first century. As such, STS 1 will involve students in the issues and questions; and in the critical perspectives and studies invoked by the social context and responsibilities of that which we name science and technology.

The very diversity of perspectives--which makes STS intellectually exciting--is reflected in the range of work and interests that its three faculty instructors bring to this course, with their interests in science and technology, organization and innovation, information technology and media. The course is organized around three major STS themes that inform our approach and around which we have organized the syllabus: Science and Community; Knowledge and Representation; Property and Rights. Science and Community are paired together to represent the role scientists and technologists play in shaping their communities, and the organization of different disciplines as communities with accepted practices for participating and interacting. Knowledge and Representation invites the question of how we communicate what we know. Property and Rights examines the process by which knowledge becomes a definable commodity in a legal and economic marketplace of ideas and inventions. Within each of these themes, the instructors come together to explore historical and contemporary issues involved in the social and societal elements that organize science and technology.
Course Objectives

1. Social inquiry: Students will deploy the methods of social science and historical inquiry in analyzing the social, political, and economic organization of science and technology, as well as in exploring the linguistic practices and human capacities that mark these two areas of activity.

2. Interpretive inquiry: Students will engage in the theoretical, historical, and critical analysis of texts, cultural artifacts, and philosophical concepts that constitute the fields of science and technology.

3. Scientific method and analysis: As science continues to be organized as a social, historical, economic, and intellectual enterprise, students will increase their “scientific literacy” through the study of processes of hypothesis testing, experimentation, data-gathering, as well as funding and ownership.

4. Ethical reasoning: Students will explore ethical implications and reasoning(s) behind the rights and responsibilities involved in the conduct of science and technology work.

Course Operating Principles

Among the course readings, journal articles and papers are available through Stanford Library’s online collection or are freely accessible online, while book chapters have been made available, by purchasing rights to post them on the STS 1 Piazza site. The one required book, whether new or used, is Scott McCloud’s graphic *Understanding Comics: The Invisible Art* (New York: William Morrow, 1994). Students need to attend weekly sections beginning Week 1 and complete readings (*) prior to date listed, as preparation for lecture and for discussion in the week’s section. In preparing assignments, students are advised to consult the Stanford University Honor Code.

Students with Documented Disabilities

Students who may need an academic accommodation based on the impact of a disability must initiate the request with the Office of Accessible Education (OAE). Professional staff will evaluate the request with required documentation, recommend reasonable accommodations, and prepare an Accommodation Letter for faculty dated in the current quarter in which the request is being made. Students should contact the OAE as soon as possible since timely notice is needed to coordinate accommodations. The OAE is located at 563 Salvatierra Walk (phone: 723-1066, URL: http://studentaffairs.stanford.edu/oae).

Hume Writing Center

The Hume Writing Center offers free one-on-one tutorials to students at any stage of the writing process and for any written or digital media assignment, for PWR of Thinking Matters, WiMor Honors, and every assignment in between.

\[\text{\textsuperscript{1}}\text{ Drawn from “Ways of Thinking/Ways of Doing,” Breadth Governance Board, Stanford University, October 12, 2012.}\]
Course Schedule

A. Opening Gambit
Week 1 | Introducing Science, Technology, and Society (PF, JH, JW)

Tuesday, 8 January: What is STS?
Including syllabus overview, readings, assignments and twitter tag #sts1. Piazza, Google Docs (for tutorial records)
* Leo Marx, “‘Technology’: The Emergence of a Hazardous Concept,” Technology & Culture 51, no. 3 (2010), 561-77.

Thursday, 10 January: Map/Timeline of the STS Field
Introducing terms and devices: Science, technology, society, property, research.

B. Science and Community
Week 2 | The Origins of Scientific Communities: Pre-20th Century (PF)

Tuesday, 15 January: Origins of Science

Thursday, 17 January: Prehistory of Engineering and Expertise

Week 3 | Private and Public Scientific Communities: 20th Century and Beyond (JW)

Tuesday, 22 January: Commercializing and Privatizing University Research

Thursday, 24 January: Open Science, Open Source, Open Data

Week 4 | The New Peer Production and the Wisdom of Crowds (JH)

Tuesday, 29 January: Guest Lecture with danah boyd

Thursday, 31 January: Peer-production and Social Software
* Yochai Benkler, “Coase’s Penguin, or, Linux and the Nature of the Firm,” Yale Law Journal 112; Sections I and III.

C. Knowledge and Representation

Week 5 | Visual Representations of Science, Technology, and Medicine (PF)

Tuesday, 5 February: Recording Nature
Field trip to special collections (w/ John Mustain, during sections; self-guided tour/exhibition: Hooke’s Micrographia; Philosophical Transactions w/ Newton; and Vesalius’s anatomy.

Thursday, 7 February: Picturing Machines

Week 6 | Visual Representation of Data (JH)

Tuesday, 12 February: History of Data Visualization
Thursday, 14 February: Contemporary Issues in Visualization: Static to Manipulable Data

Week 7 | No Knowledge with Representation; No Representation without Publication (JW)

Tuesday, 19 February: Philosophical Transactions and Publishing Newton in 1672
* Henry Oldenburg, “Introduction,” Philosophical Transactions 1 (1664/5), pp. 1-2;
* Isaac Newton, “A Letter of Mr. Isaac Newton...,” Philosophical Transactions 80 (1671/2) [opening and closing paragraphs]

Thursday, 21 February: PLoS One and Open Access to Science in 2013

D. Property and Rights

Week 8 | Intellectual Property Rights: Origins and Principles (PF/JW)

Tuesday, 26 February: Origins of Intellectual Property

Thursday, 28 February: Principles of Intellectual Property, from Locke to BRCA1/2

Week 9 | New Media, New Ownership: The Remix (JH)

Tuesday, 5 March: Creative Commons; Remix Culture
* YouTube: Larry Lessig: How Creativity Is Being Strangled by the Law
* DJ Danger Mouse The Grey Album (Jay-Z and The Beatles). Playlists for The Grey Album and The White Album available here: [http://www.youtube.com/user/STS1stanford](http://www.youtube.com/user/STS1stanford)
* Review of DJ Danger Mouse. TBA

Thursday, 7 March: Student Science Remix Presentations
* Previews of student media presentations on YouTube. Each section allotted 10-minute presentation for project and commentary.

**E. Concluding Gambit**

**Week 10** | Three Angels and Ten Questions (JW, PF, JH)

Tuesday, 12 March: Angels of Scientific Patronage: Medieval, Renaissance, Contemporary

Thursday, 14 March: Student Q&A: Ten Questions for STS
* Student questions for the field of STS voted up to top ten positions by classmates in advance of class, addressed by three instructors, with real-time supplementary questions from class.

**Course Assignments and the Public Life of STS**

1. **STS Blog Annotation:** Contribute a comment (300-500 words) to an actual newspaper article, blog or journal article found online that is dealing with a STS theme. In your comment, analyze the STS issue, supported by citing and hyperlinking 2-3 relevant works, in ways that can be said to raise the level of dialogue, evidence, and educational value of the discussion. Post link to comment to STS1 website.[10 Recommended sites for STS themed discussions, students can propose their own. Distribute deadlines](DUE: Week 3; 15% of course grade)

   **Go Public (Required):** Format for posting to Piazza thread for STS Blog Annotation.
   Student name; “Title of item commented upon” [hyperlinked to URL], Website Title; Date of posting (YYYY-MM-DD): Tweet-length summary of the comment made.

2. **STS Book Review:** Write a critical analysis and review (1,000 words) of a book that makes a significant contribution to the study of STS (avoiding edited collections of chapters by different authors). Choose the book either from the list provided in this syllabus (with more than one review for a title permitted) or select a work outside this very partial list and have it approved in advance by the section leader. In your review, take a position on the book’s contribution to STS, considering its value and relevance, as well as its shortcomings, for you as a student in this field. Promote the book under review on Twitter using the tag #sts1
Go Public (Optional): Consider submitting book review, after revising based on comments, to Intersect, Stanford’s STS student journal.

3. Final Projects: Taking a theme from the STS book reviewed, consider the theme’s current and contemporary status in the media, in the research literature, and among your peers. This project can take the form of a course paper (2,000 words) or a multimedia remix project (3-5 minutes), with both forms judged by their critical engagement of STS theme, citation of relevant materials, and thematic coherence. (DUE: Week 8; 500-word proposal) (DUE: Week 10; Final copy; 40% of course grade).

Go Public (Optional): Consider submitting course papers (or multimedia with commentary), after revising based on comments, to Intersect, Stanford’s STS student journal.

4. Section Participation: Contributions to section discussions, drawing on readings and lectures. Contribution to section media presentation. (DUE: Week 9; Media Presentations 20% of course grade).

Examples of Books for Review Assignment


Hughes, Thomas. *Human-Built World: How to Think about Technology and Culture* (Chicago: University of Chicago, 2004).


