Main Themes in the History of Technology

STS 5206 (CRN 95336), HIST 5206 (CRN 93398)

Fall Semester 2009
Meets 2:00 PM-4:50 PM, Tuesdays

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Readings and other materials on Scholar and from Project Muse (Technology & Culture articles from 1998 to present).

This graduate-level introduction to the history of technology focuses on the predominant themes that have been pursued by scholars during the past 40 years. For example, students will read several books and articles that employ a “contextualist” approach to history of technology—an approach that examines hardware and artifacts within a context of public policy, economics, and society in general. Students will also evaluate criticisms of the historiographical approaches in the discipline and look at studies that have sought to remedy thematic and methodological imbalances.

While the course may focus on the principles, theories, and methodologies of scholarly research and presentation in the history of technology, it depends largely on the reading of lively examples of historiographical approaches. Because of the professor's research interests, the class will therefore read about subjects in the history of American technology. Topics include the history of mass production, the nature of invention, the relationship between business institutions and technology, electrification in America, public policy, the changing relationship between technology and humans in warfare, and the technological “revolution” in the home.

On a highly practical level, this course seeks to help students become better analytical thinkers, writers, and communicators. The course involves extensive reading and writing as well as public speaking. Skills honed in the course will serve students well in academic and other professions. Students will also learn about the inner workings of a professional society, due to the professor’s service as an executive officer of the Society for the History of Technology.

Though historical methods will be stressed in the course, non-history students should find this course useful for providing an understanding of technology and its interactions in society. In previous years' classes, students have come from the disciplines of Science and Technology Studies (STS), History, Technology Education, Curriculum & Instruction, Chemistry, Physics, Biology, Engineering, and Forestry.

Class Schedule

Aug. 25. 1. Introduction to the course, requirements, etc.


Bruce E. Seely, “SHOT, the History of Technology, and Engineering Education,” Technology and Culture 36 (October 1995): 739-72. Fun and quick to read


Sept. 8.


Sept. 15.


Sept. 22.

5 History and policy: Applying the lessons of history. Ass. #3.

Read one of Stearns’ articles:

Read these three:


Guiding questions: Why has policy history (and applied history) been viewed so negatively at times by traditional historians? What value can policy historians offer to 1) other historians and 2) policy makers? What potential (“real-world”) value does policy history offer? Can historians of technology (and STS people in general) offer more to the real world than can traditional policy historians?

Sept. 29.

6. The meaning and rhetoric of “technology.” Readings: Schatzberg, Marx (#1), Nye (#2), and Kline (#1). Recommended: Kline (#2) and Marx (#2). Also, find another article relating to this topic (perhaps by looking at some of the references in the assigned readings).


Oct. 6.

7. System building, momentum, and the social construction of technology. Readings: Bijker, Pinch, Hughes (#2), Hughes (#3), Noble, and Tauritz articles. (Mini-discussion by Hirsh on doing presentations.)


8. Student presentations. Ass. #4 for students making presentations. Ass. #5 for others.

Oct. 20.


Optional (and lots of fun, especially after reading the Winner piece):


Nov. 3  11. Social History of Technology II.5: Gender and technology. Readings: Pursell (#2), Maines (#1 and #2), Williams, and Tone articles. Recommended: Ferguson book, ch. 8. Also, find at least one article on this topic. SP


Nov. 10.  12. Student presentations. Ass. #4 for students making presentations. Ass. #5 for others.


Nov. 24.  Unannounced mandatory exam for entire class period. No studying permitted. Attendance is voluntary.

Dec. 1.  14. Historical studies of failed technologies. Readings: Lipartito, Staudenmaier (#2), and Perrow. Also, find at least one article on this topic. SP


Dec. 8.  15. Criticisms of the history of technology, different voices, and course review. Readings: Staudenmaier (#3) article, Douglas, and Fouché. Ass. #7 due today (for discussion in class).


Possible topics:
P1. History of Military Technology. Reading: Mindell book and Knowles article or another article of your choice dealing with the theme of the day.

P2. Technology out of control? Winner (#2) and (#3), and Hong articles. Also, find at least one article on this topic.
Sungook Hong, “Unfaithful Offspring? Technologies and Their Trajectories,” *Perspectives on Science* 6 (Fall 1998): 259-.

Assignments

1. Choose an article from *Technology and Culture* that illustrates one of the themes from our readings. (The Ceruzzi article we read for the first class serves as a good example of such an article.) In a short paper (400 words), explain how the author presents the theme and makes a significant historical argument. How well does the author present the thematic significance? Be prepared to discuss your paper in class.

2. Find three reviews of Nye's book and summarize (in 400 words) the comments and criticisms of the book. What common features do the reviews share? How do they differ? How do you explain the similarities and differences? Also, based on your experiences outside this course, discuss whether you agree with the reviewers or not. Did the reviewers (or author) omit to consider significant themes?

3. Locate and read an article that deals with history of science or technology policy in a field that interests you (such as energy, communications, information technology, etc.). Analyze the article by dealing with the following concerns: 1) Describe the general “story” presented in the article. 2) What lesson does the author offer about the nature of policy? 3) Which theme or themes (derived from your readings, especially Zelizer [2000]) does this article exemplify? 4) Does this article have value to nonhistorians (i.e., policy makers)? 5) How should the author strive to make that value available to the policy maker? Paper length: 400 words.

4. Students will choose one Dexter/Edelstein Prize-winning book and write a critical review. Aside from the normal book review (not a book report—see appendix), you should discuss such things as: What made the book a winner? What broad themes did it develop? What new interpretations did the author advance? Also, read and comment upon at least two published reviews of the book. Feel free to be critical of the Dexter/Edelstein Prize Committee choice, and employ analytical techniques you have developed elsewhere. Paper length: 500 words.

All students will present their reviews to the class. Presentations should be timed to last 20 minutes. Moreover, each student will condense his or her written report into a 250-word summary for distribution to the entire class. (Write a summary—not an outline.) Three or four students will make presentations on each of the two days listed in the class schedule (above). The remaining students will present their reviews at the end of “normal” classes, after we discuss the subject listed. These classes are marked “SP” for “student presentation.”

5. In an earlier assignment, you wrote a critical review of a recent book in the history of technology. In this assignment, you will analyze the other main form of scholarly expression—the research article.

Each year, the Society for the History of Technology awards the Usher Prize for the best scholarly work published in *Technology and Culture* during the preceding three years. Select a group of two or more of these award-winning articles and characterize the traits of the articles that contributed to their success. In other words, by offering examples, you will describe the positive qualities common to good research articles. No more than half of your report should be devoted to summarizing the content of the articles. Please spend most of your effort examining such matters as: uses of evidence; forms of argument or types of logic; ways of stating problems, questions, or theses; styles of presentation; and interpretive strategies or approaches (i.e., historiographic, methodological, or philosophical presuppositions). Why did these articles beat other articles written during the same year? Try to reach some general conclusions about what constitutes an exemplary research article. As always, feel free to employ skills you developed in other contexts.
The paper should contain 500 words. Include bibliographic citations of the articles (but don’t include them in the word count.)

6. Locate and read two articles dealing with “post-modernism” to gain familiarity with how the concept has been applied to technological and capitalistic enterprises. [One possibility is a portion of David Harvey, The Condition of Postmodernity (Cambridge, MA: Blackwell, 1990).] Then find another article (or chapter of a book) dealing with the subject. Finally, write a 400-word essay explaining how you think (or don't think) the concept can be applied to arguments made by Lovins in this week's reading. Make sure to explain what you think “postmodernism” is before you argue that Lovins's argument is or is not part of the genre.

Alternative assignment: Examine the Lovins article in light of any other coherent interpretative theme that you choose. In other words, read and be critical of Lovins' article by looking at it through the lens of a scholar who pursues interests in Marxism, feminism, environmentalism, political philosophy, or whatever.

7. Here is an assignment to be thinking about throughout the entire term. Write a short paper on how you think the history of technology fits into science and technology studies. The paper is intended to be integrative. Use experience from other courses, life, or whatever. Think broadly and write about what you think are the major issues in the STS field and how studies in the history of technology can (or cannot) help address those issues. You do not need to do extensive research outside of what you have already read in this (and other courses). Feel free to be speculative and critical. This 500-word paper is due on the last class meeting, and it will be discussed as part of the class. If you are not an STS student, explain how history of technology fits into your program of study.

Note: For all assignments, include footnotes or a short bibliography of readings you have used for writing your papers.

ALTERNATIVE ASSIGNMENT, INSTEAD of assignments 6 and 7. If you would like to explore in detail some theme that we have studied this semester, you have the option of writing a more classical “term paper” for this course. In that paper, you can choose almost any topic (after consulting with the professor) in the social studies of technology, and write a 10-page paper (word count 2,500). The paper should be extensively documented (with footnotes or endnotes) and should serve as the basis for a publishable article or thesis later in your graduate career. The paper is due on the last day of class. Please also provide a 250-word abstract of your paper so we can discuss it.

General assignments

This is a seminar class, and its success depends largely on the participation of students. As noted by a colleague, Professor Robert Hatch of the University of Florida, the “[s]eminar discussion has a long tradition and is based on criteria not far removed from those of the ’critique‘.” Professor Hatch provides a set of guidelines that you need to consider in all aspects of seminar communication and when preparing reviews of commonly read texts in this class. Read his criteria at http://web.clas.ufl.edu/users/rhatch/pages/02-TeachingResources/readingwriting/05surviv.htm.

For each class, every student should be prepared to discuss all the readings. Moreover, each student will chose (or will be assigned) one reading (or one part of the readings). He or she should be especially well prepared to

- summarize the reading,
- discuss the major themes and significance of the reading,
- provide a critique of the reading, noting the author's use of evidence and his/her success in arguing from it.
- speculate on how the themes and approaches could be used as the basis of a future research project.

(As an alternative to this approach, we will experiment with allowing two students manage all the readings and rotate that task among all students throughout the semester.)

Students may also want to perform supplementary reading to answer the following questions: With what other work in the profession does the reading compare? Which work makes its points better? Why? In all of the above, two students may collaborate on the same assignment. In the “real” academic world, it is common for people to work together on a project. Here is a way to get some experience.
Word counts and “to be”

Include a word count at the end of each written assignment. (Penalty for none: 5 points.) This strict word-length requirement will help you write clearly and concisely—something that is greatly appreciated in the “real world.” For extra assistance in reaching this goal, see Jacques Barzun, Simple and Direct, a wonderful and easy-to-read primer on good writing. (Penalty for papers +/- 10%: 5 points for each 10% increment.)

In each of the shorter assignments (500 words or less), you will lose 0.5 point for using the verb “to be” in any of its forms more than three times. (“To be” is the infinitival form of “am,” “is,” and “are” in all tenses.) In the alternate final assignment, you may use the verb three times per 500 words (15 times for a 2,500-word paper). By consciously avoiding the verb, you will choose more active verbs that yield more interesting papers. Also, make sure you read the PDF chapter by C. Edward Good on “to be.” (Penalty beyond the limit: 0.5 point per use of “to be.”) For more style tips, see Barzun’s book and Hirsh’s writing tips (http://www.history.vt.edu/Hirsh/writtips.html).

Due dates

Due dates for assignments are strict. Late work will be penalized 10 points per calendar day (weekends included) unless extenuating circumstances have been discussed with me before the due date. (Obviously, some extenuating circumstances cannot be foreseen, and they will be dealt with on a case-by-case basis. But please realize that a disk-drive failure that wipes out your paper does not constitute an extenuating circumstance. Make sure you keep backup copies of your work on CDs, memory sticks, etc.) Put these due dates on your calendar and plan your lives accordingly. In the “real world,” missing a deadline often means losing one's job.

Grades

Each student should attend all discussions and be prepared to participate fully. In fact, due to the small size of the class, participation will be necessary to avoid reliance on the professor to lecture.

Grades will be assigned using the approximate formula:

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<tr>
<th>Assignments 1-6 (12.5% each)</th>
<th>75%</th>
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<tbody>
<tr>
<td>Assignment 7</td>
<td>15%</td>
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<tr>
<td>(Alt. final assignment: 27.5%)</td>
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</tr>
<tr>
<td>Class participation:</td>
<td>10%</td>
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The instructor is amenable to changes in topics and other ideas suggested by students. He expects the students to “make or break” the course. In other words, the success of the course depends much on the attitudes and enthusiasm of the students.

Books to be Read


Readings (besides published books) that you may enjoy (none are required reading)


Appendix: Purpose of a Book Review

A book review is a standard way for an academic to analyze and criticize the work of other scholars. It is not, however, a “book report,” which simply re-tells the story contained in the book. The review may summarize the book's contents, but more importantly, it reviews the book's thesis and interpretations.

The purpose of a review is:

1) to analyze the validity of the work's main concepts;

2) to criticize (positively or negatively) the book's main thesis. For the scholarly community, the review serves as a major tool by which research is assessed.

The reviewer must not be afraid to evaluate a respected author even though he or she appreciates the effort that has gone into a major work. One can evaluate a book by many methods, of which comparison is the most common. In other words, the reviewer can compare one work to another which has a related thesis, interpretation, or subject matter. Praise or criticism should be backed up with relevant support from these other works.