

Fall 2012 -- CRD 118 Technology and Society

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Brief Course Description

This class explores the relationships between technology and socio-economic world. Even though technology plays a fundamental role in even our most intimate activities, few of us reflect upon how technology develops or why it develops in the ways it does. The purpose of this course is to acquire a theoretical and historical understanding of how technology evolves and then use these understandings to examine some topics of technological development and contemporary society. By the end of the course, my hope is that you will have a better understanding of why our everyday technologies have evolved in the way they have. I also hope you will have a better understanding of the fact that we can affect this evolution.

We are constantly creating new things for our use and abuse. These objects create new needs such as for a radio, a fax machine, a cell phone, side-impact air bags, designer drugs, etc. And yet, we know little about why and how these artifacts came to populate our world and structure our lives. In the modern era, when we perceive a problem, then we call upon our technologists to solve it. Technical fixes are a preferred remedy. Even when there is no problem, businesses are trying to create new needs and define new problems. However, technologies are not neutral, they have politics, social structures, and many other things designed into them. The technologies that a group or society uses tell us much about that society, and we often measure other societies by their technologies. Finally and most important, technological artifacts shape our lives and are powerful forces in determining our actions.

Required Readings

1. All readings are on the class Smartsite web page under "Resources."
2. Large parts of one book are required (you can buy it on Amazon or I have scanned the assigned portions and they are on class website):  
Basalla, George. 1988. *The Evolution of Technology* (New York: Cambridge University Press).

Grading

Your grade will be given on the basis of the following products:

- |   |            |
|---|------------|
| 1. Four unannounced quizzes (drop one - 10% each)   | 30%        |
| Quizzes missed cannot be made-up. However, the lowest one will be dropped. The quiz is given at the beginning of class any student more than 10 minutes late will not be allowed to take the quiz (no exceptions) |            |
| 2. Paper (due on day of final)  | 60%        |
| All students are expected to make a five-minute presentation on their research. If you do not make this presentation your grade will be lowered by one full grade, i.e. B becomes C etc.                          |            |
| 3. Classroom discussion (I call on students in class randomly!)   | <u>10%</u> |
| TOTAL   | 100%       |

Student Code of Conduct

All students should be familiar with the Student Code of Academic Conduct that is located here <http://sja.ucdavis.edu/cac.html>. Please review this carefully and ask your instructor, if you have any questions. Remember the instructor is obliged to refer you to Student Judicial Affairs in all cases of violation or suspected violation.

In addition to the well-known cases of plagiarism and cheating on examinations, it is also a violation of the Code of Conduct to use your own written materials from papers prepared for other classes, unless you take the following points into consideration.

It is permissible to use materials and texts from other class projects, within CRD or in other departments, under these conditions:

- (1) You inform the instructor beforehand.
- (2) You clearly identify the portions where you quote yourself (or collaborative work)
- (3) You provide a copy of the previous work you have submitted in the other class to the instructor.
- (4) To ensure that you receive a good grade make sure that it fits seamlessly into the assignment for THIS class.
- (5) If you have any doubts about the extent to which you can use already written materials, the talk to the instructor or the TA prior to making any submission.

### Assignments

The quiz and paper are the key to success in the class. The following is a short description of the various grade-related issues:

Quizzes: There will be four unannounced quizzes, you may drop the lowest one. If you miss the class or are more than 10 minutes late that was your choice and there will be no make-up. They may include short answers, multiple choice, and fill-in the blank questions. The quiz will cover the readings and lectures for the previous two classes and the class of the day of the quiz.

Final Paper: The final paper is meant to acquaint you with the history of a technology in more depth than you would otherwise get. Any technology or artifact is acceptable for the paper. Given that the paper is 60 percent of the grade, it should be approximately fifteen pages in length. For the paper you will choose any product or item you wish and you will trace its evolution through time. The integration of the readings into the paper is mandatory. Any paper that does not integrate the readings will receive no higher than a C -- the better the integration, the higher the grade. I have posted previous "A" papers on the class website on My UC Davis.

### Presentations:

On the last two days of the quarter, students will be expected to make a five-minute presentation on their research paper. This is not graded, but I am a stickler on you doing a good job on this.

Topics that are not to be done because we discuss them in great detail during class include: bicycles, cameras, and Teflon.

Please do not put any covers etc. on the papers. The paper should begin with a title page giving your name, the class, date, instructor etc.

Excellent past papers will be provided to you.

**VERY IMPORTANT:** To encourage you to make a decision as soon as possible, I would like a one-paragraph description of your topic choice on October 15, 2012. I will evaluate each of your choices. Not handing this in on time will be an automatic "F" for 10 percent of the total paper grade (to be subtracted from the 60 percent).

The paper should be typed double-spaced on one side of the page. Please use a normal typeface and a 10 or 12 pitch. References to any written materials should be in footnotes or embedded citations (Kenney 1998:2). **Everyone must provide an electronic copy of the paper emailed as an attachment. However, a hard copy is also required.** The paper will be due on the date of the final examination as published in the catalog.

### Required Readings

Readings are an essential part of the course and, though not necessarily duplicated in the course lectures, are a necessary background for discussion. They will be necessary to adequately participate in the class and you will be responsible for knowing this material for quizzes.

### **Monday, October 1 – Introduction and hand out syllabus etc.**

### **Wednesday, October 3 – Technology and Intellectual Property**

From the U.S. Patent and Trademark Office please read:

1. What is a patent?
2. Patent laws.
3. What can be patented?
4. Novelty and other conditions for obtaining a patent

The URL is: <http://www.uspto.gov/web/offices/pac/doc/general/>

Lessig, Lawrence. 1999. *Code* (New York: Basic Books) pp. 122-141.

Beauchamp, Christopher. "Who Invented the Telephone? Lawyers, Patents, and the Judgments of History." *Technology and Culture* 51(4), 854-878.

Please play around with Google Patent. Check out patents from 1820 and today to see how they were written.

### **Monday, October 8 – Standards, Path Dependence, and Lock-In**

David, Paul. 1985. "Understanding the Economics of QWERTY: The Necessity of History." In (W. Parker Ed.) *Economic History and the Modern Economist* (Oxford: Basil Blackwell): 30-49.

Kenney, Martin and Bryan Pon. 2011. "Structuring the Smartphone Industry: Is the Mobile Internet OS Platform the Key?" *Journal of Industry, Competition and Trade* 11:239–261.

### **Wednesday, October 10 – Marx on Technology**

Rosenberg, Nathan. 1976. "Marx as a Student of Technology." *Science, Technology and the Labour Process* pp. 8-31.

MacKenzie, Donald. 1984. "Marx and the Machine." *Technology and Culture* 25 (3): 473-502.

### **Monday, October 15 – Technology and Politics Hand In Paper Topic**

Winner, Langdon. 1980. "Do Artifacts Have Politics." *Daedalus* 109 (1): 121-136.

Gaby Wood. 2007. "From the Web to the White House." *Observer* (July 8) pp. 6

### **Wednesday, October 17 – Evolution Illustrated**

The articles in this section are illustrations of how technologies evolve.

Gladwell, Malcolm. 2002. "Smaller: The disposable diaper and the meaning of progress." [http://www.gladwell.com/2001/2001\\_11\\_26\\_a\\_diaper.htm](http://www.gladwell.com/2001/2001_11_26_a_diaper.htm) (November 21).

Funderburg, Anne. 2000. "Making Teflon Stick." *Invention and Technology* (Summer) pp. 10-20. [http://www.americanheritage.com/articles/magazine/it/2000/1/2000\\_1\\_10\\_print.shtml](http://www.americanheritage.com/articles/magazine/it/2000/1/2000_1_10_print.shtml).

Petroski, Henri. 1993. *The Evolution of Useful Things* (New York: Knopf) pp. 3-21 & 51-76.

### **Monday, October 22 – Technological Evolution**

Basalla, George. 1988. *The Evolution of Technology* (New York: Cambridge University Press) pp. 1-63.

Friedel, Robert. 1994. "The History of the Zipper." *Invention and Technology* (Summer) pp. 8-16. [http://www.americanheritage.com/articles/magazine/it/1994/1/1994\\_1\\_8.shtml](http://www.americanheritage.com/articles/magazine/it/1994/1/1994_1_8.shtml)

### **Wednesday, October 24 – Selection**

Basalla, George. 1988. *The Evolution of Technology* (New York: Cambridge University Press) pp. 135-205.

### **Monday, October 29 – Social Construction of Technology**

Pinch, Trevor and Wiebe Bijker. 1987. "The Social Construction of Facts and Artifacts," In Bijker, T. Hughes, and T. Pinch (eds) *The Social Construction of Technological Systems*. (Cambridge, Ma.: MIT Press) pp. 17-47. {skim pages 17-28, read carefully pages 28-47}

Latour, Bruno. 1991. "Technology is Society Made Durable." In John Law (Ed.) *A Sociology of Monsters: Essays on Power, Technology, and Domination* (London: Routledge) pp. 103-131.

### **Wednesday, October 31 – Social Construction Examples**

Pinch, Trevor. 2002. "Why You Go to a Music Store to Buy a Synthesizer." In R. Garud and P. Karnoe (Eds.) *Path Dependence and Creation* (New York: Lawrence Erlbaum Associates) pp. 381-399.

Rosen, Paul. 1993. "The Social Construction of Mountain Bikes." *Social Studies of Science* 23 pp. 479-513.

### **Monday, November 5 – Social Construction of Technology in Sport**

Hilvoorde, Ivo van. 2007. "Flopping, Klapping and Gene Doping: Dichotomies Between 'Natural' and 'Artificial' in Elite Sport." *Social Studies of Science* 37, 2: 173-200.

Downey, Greg. 2007. "Producing Pain: Techniques and Technologies in No-Holds-Barred Fighting." *Social Studies of Science* 37: 201-226.

Paul Barratt. 2011. "Vertical worlds: technology, hybridity and the climbing body." *Social and Cultural Geography* 12 (4): 397-412.

### **Monday, November 19 – Technological Spectacles and the Creation of Legitimacy**

Adams, Judith A. 2004. "The Promotion of New Technology Through Fun and Spectacle: Electricity at the World's Columbian Exposition." *The Journal of American Culture* 18 (2): 45–55.

Rao, Hayagreeva. 1994. "The Social Construction of Reputation: Certification Contests, Legitimation, and the Survival of Organizations in the American Automobile Industry: 1895-1912." *Strategic Management Journal*, 15 (Winter): 29-44.

Lampel, Joseph. 2001. "Show-and-Tell: Product Demonstrations and Path Creation of Technological Change." In R. Garud and P. Karnoe (Eds.) *Path Dependence and Creation* (New York: Lawrence Erlbaum Associates) pp. 303-327. (skim to get the idea).

### **Wednesday, November 7 – Technology and the Military**

Ellis, John. 1975. *The Social History of the Machine Gun* (New York: Pantheon) pp. 21-45 and 167-178.

New reading or drop section

### **Monday, November 12 – Holiday, No class.**

### **Wednesday, November 14 – China, Technology and Imperialism**

Mokyr, Joel. 1992. *The Lever of Riches* (New York: Oxford University Press) pp. 209-238.

Adas, Michael. 1989. *Machines as the Measure of Man* (Ithaca, NY: Cornell University Press) pp. 1-16, 402-418.

Zhou, Ping and Loet Leydesdorff. 2006. "The emergence of China as a leading nation in science." *Research Policy* 35: 83–104

### **Wednesday, November 21 -- Technology and Food**

Josephson, Paul R. 2008. "The Ocean's Hot Dog: The Development of the Fish Stick." *Technology and Culture* 49, 1: 41-61.

Boyd, William. 2001. "Making Meat: Science, Technology, and American Poultry Production." *Technology and Culture* 42, 4: 631-664.

Pollan, Michael. 2006. *Omnivore's Dilemma* pp. 15-31.

### **Monday, November 26 – Socially Constructing the Problem of Global Climate Change**

Lahsen, M. 2005. "Seductive Simulations? Uncertainty Distribution Around Climate Models." *Social Studies of Science* 35 (6): 895-922.

Demeritt, D. 2001. "The Construction of Global Warming and the Politics of Science." *Annals of the Association of American Geographers* 91 (2): 307-337.

### **Wednesday, November 28 – Universities, Technology and Commercialization**

Merton, Robert K. 1957. "Priorities in Scientific Discovery: A Chapter in the Sociology of Science." *American Sociological Review* 22 (6): 635-659.

Press, Eyal and Jennifer Washburn. 2000. "The Kept University." *Atlantic Monthly* (March).

Vallas, Steven Peter and Daniel Lee Kleinman. 2008. "Contradiction, Convergence and the Knowledge Economy: The Confluence of Academic and Commercial Biotechnology." *Socio-Economic Review* 6: 283–311.

### **Monday, December 3 – STUDENT PRESENTATIONS**

### **Wednesday, December 5 – STUDENT PRESENTATIONS**