

Science & Technology in the Modern World

Science & Technology Studies 201

Credits: 3.

Professor: Clark A. Miller, La Follette School of Public Affairs

Office: 205 Observatory Hill Office Building

Office phone: 265-6017

miller@lafollette.wisc.edu

Course Description

This course is designed to meet three objectives:

1. To help you learn to use historical, sociological, and philosophical approaches to think critically about the role of science & technology in contemporary societies.
2. To introduce you to a cross-section of specific social problems raised by advances in science, technology & medicine.
3. To provide you with the necessary skills and background to pursue further courses in the field of science & technology studies.

Course requirements

- *Classroom participation and reading* (20%). Students are expected to attend all class sessions, to come to class having mastered the readings, to have completed any web assignments for a given day, and to participate fully in classroom discussions.
- *Exams* (50%). The class will have two hour-long, in-class mid-term exams on March 16 and May 6. Each will be worth 25% of your grade.
- *Writing assignments* (30%). Students are required to submit three writing assignments during the course. Each one is worth 10% of the grade. These are described below:
 - In his essay, “Do artifacts have politics?” Langdon Winner asserts that technologies have inherent politics. Write a five-page essay explaining why you agree or disagree with his view. This assignment is due on **February 11**.
 - At the back of your reading packet is the article “10 Emerging Technologies that Will Change Your World,” from the February 2004 issue of MIT’s *Technology Review* magazine. Select one of the 10 technologies and write a five-page essay analyzing three ethical or social issues that your selected technology may raise. This essay is due **April 8**.
 - Re-read the Bill Joy article that we discussed on January 24. Write a five-page essay explaining why, after taking this class, you agree or disagree with his argument that we need to relinquish “our pursuits of certain kinds of knowledge.” This essay is due on **May 4**.

Course materials

This course has two required books, both of which are available from the University Bookstore:

Langdon Winner, The Whale and the Reactor (Chicago: Chicago Univ. Press), 1986.

Harry Collins and Trevor Pinch, The Golem at Large (Cambridge: Cambridge University Press), 1998.

Other reading materials for this course are contained in a required course reader that can be purchased at the Life Science Communication Copy Shop, which is located at the southwest corner of Agricultural Engineering on Henry Mall. Use the outside entrance on the southwest corner to access the Copy Shop. They will take cash or a check (with your ID).

Course subjects

Date	Description	Reading
1/19	Introduction to the course	No reading.
1/21	What is life like in a technological world?	Langdon Winner, <u>The Whale and the Reactor</u> (Chicago: Chicago Univ. Press). Chapter 1. "Technologies as forms of life"
1/24	How should we respond to the potential of radical scientific and technological change?	Bill Joy, "Why the Future Doesn't Need Us," <i>WIRED</i> , April 2000.
1/26	What might life be like in genetic world?	Movie: Gattaca (part 2)
1/28		Movie: Gattaca (part 2)
1/31		Discussion of Gattaca: What are some of the ways in which life is structured by genetic technologies in the film? Can you think of parallels in our current lives? How plausible is the future Gattaca portrays?
2/2	A fable of future reproduction	Cussins, C. "Confessions of a Bioterrorist." In E. A. Kaplan and S. Squier, eds., <u>Playing Dolly</u> . New Brunswick, NJ, Rutgers University Press.
2/4	How does technology relate to progress?	Leo Marx, "Does Improved Technology Mean Progress?" <u>Technology Review</u> 90, 1987.
2/7	How do the users of technology relate to technological change?	Kline, R. and T. Pinch (1996). "Users as agents of technological change: The social construction of the automobile in the rural United States." <u>Technology and Culture</u> 37: 763-795.
2/9	Technology's users fight back	Michael Flynn, "Soul of the Machine," <u>Analog</u> , Feb. 1989.
2/11	Technology and politics	Winner. Chapter 2. "Do artifacts have politics?" Winner writing exercise due.
2/14	Genetics and biotechnology	"The Human Genome: Special Section," <u>Science</u> 291: 1177-1207 + timeline and quotes.
2/16	Stem cells	Roger Pedersen, "Embryonic stem cells for

		medicine,” <u>Scientific American</u> 280(4): 68-73, 1999.
2/18	Nanotechnology	David Rejeski, “The Next Small Thing,” <u>The Environmental Forum</u> , March/April, 2004.
2/21	New Reproductive Technologies	Movie: Nova – Making Babies
2/23		Discussion of Making Babies. What ethical and social issues did the film raise?
2/25	Remaking the body: stem cells	Doug Carr, “The Human Body Shop,” <u>Technology Review</u> , April, 2001, pp. 73-77.
2/28	Remaking the body: hi tech athletics	Andrew Tilin, “The Post-Human Race,” <u>WIRED</u> , August, 2002.
3/2	Genetics and your pet	Visit the website: http://www.allerca.com . Come to class prepared to discuss the ethics of genetically modifying people’s pets.
3/4	Cloning	Brian Alexander, “(You) ² ,” <u>WIRED</u> , Sep. 2002.
3/7	Cloning and the Law	Cass Sunstein, “The Constitution and the Clone,” and Laurence Tribe, “On Not Banning Cloning for the Wrong Reasons,” in M. Nussbaum and Cass Sunstein, eds., <u>Clones and Clones</u> (New York: Norton), 1999.
3/9	Nanobots	Michael Crichton, “Introduction: Artificial Evolution in the Twenty-First Century,” <u>Prey</u> (Harper Collins: New York), 2002. For those of you who are ambitious, read the whole novel.
3/11	Nanotechnology and the military	David Talbot, “Super soldiers,” <u>Technology Review</u> , Oct. 2002. We’ll also watch a short film from the MIT Institute for Soldier Nanotechnologies.
3/14	Technology and terrorism	Sterling Blake (1995). “A Desperate Calculus.” In G. Bear, ed., <u>New Legends</u> . New York, NY, Tor Books.
3/16	Mid-term Exam I	
3/28	Technological Risks and Hazards	Winner, Ch. 8. On Not Hitting the Tar Baby.
3/30	Risk and Culture	Sheila Jasanoff, “Technological Risk and Cultures of Rationality,” forthcoming.
4/1	Technological Accidents	Movie: American Experience, Three Mile Island.
4/4	Normal Accidents	Charles Perrow, <u>Normal Accidents</u> (Princeton: Princeton), 1984. Introduction and Chapter 1. Combined with discussion of Three Mile Island.

4/6	The Politics of Accidents	Collins and Pinch, Chapter 2. The Naked Launch: Assigning Blame for the Challenger Explosion.
4/8	Risky Foods	Movie: Harvest of Fear. Emerging Technologies essay due.
4/11		Movie: Harvest of Fear (Part 2)
4/13		Discussion of Harvest of Fear. What should society do about the potential risks of genetically modified food?
4/15	Environment Risks from GM Crops	Losey, J., L. Rayor, and M. Carter (1999). "Transgenic Pollen Harms Monarch Larvae," <u>Nature</u> 399 : 214. *Hodgson, J. (1999). "Monarch <i>Bt</i> -corn Paper Questioned." <u>Nature Biotechnology</u> 17 : 627.
4/18	Regulating Risks	Movie: Dangerous Prescriptions.
4/20	Trade-offs in Drug Regulation	Arthur Daemmrich and Georg Krucken, "Risk v. Risk," <u>Science as Culture</u> 9(4): 2000. Combined with discussion of Dangerous Prescriptions.
4/22	Class Rescheduled	Attend Earth Day 2005 Symposium on Human and Environmental Vulnerability
4/25	Lay/Expert Perceptions	Collins and Pinch, Ch. 7. ACTing UP: AIDS Cures and Lay Expertise.
4/27	Lay/Expert Perceptions	Collins and Pinch, Ch. 6. The Science of the Lambs.
4/29	Class Rescheduled	Attend Nanotechnology and Society Symposium
5/2	The Risks of Nanotechnology	Ivan Amato, "Nano's Safety Checkup," <u>Technology Review</u> , Feb. 2004. David Rotman, "Measuring the Risks of Nanotechnology," <u>Technology Review</u> , Apr. 2003.
5/4	Wrap Up	Discussion of Bill Joy essays. Bill Joy essays due.
5/6	Mid-term Exam II	