HIST 494 Science & Technology in American Civilization

Spring 2017, T/TH 1:30-2:45, UNIV 001

Sharra Vostral

Associate Professor

[svostral@purdue.edu](mailto:svostral@purdue.edu)

[www.vostral.com](http://www.vostral.com)

120 University Hall

office hours: before class; by appt.

Course Description

This course examines the development of science and technology in the United States from colonial times to the present. Emphasis in the earlier periods is placed on comparison and contrast of the American scene with that of Europe. Subsequent treatment deals with the technological aspects of industrialization, and maturation of the American scientific community, and the increasing social effects of science and technology. Among those considered are the forces making for urbanization, for greater interdependence among science, industry and government, and for repercussions in intellectual affairs.

Learning Outcomes

Students will be able to:

• appreciate the circumstances and history of scientific and technological innovation

• understand and recognize how cultural assumptions influence the practice of science and development of technologies during the late 19th and 20th centuries

• analyze the design of objects to understand cultural consequences of their use

•develop skills for reading critical historical commentaries and evaluating them

•gain ability to question technological artifacts, scientific practice, and transmission of knowledge in historical context

All course readings and information will be available on Blackboard.

**Assignments** (100 points):

Individual Work

10% Homework (10 in total; 1 point/piece) = 10 points

10% Science as Metaphor Presentation = 10 points

25% Space Flight Archive Project = 25 points

topic & sources (5); draft exchange (5); final paper (15)

20% Individual Final Project = 20 points

10% weekly discussion, & participation (includes in-class and online) = 10 points

Group work

10% 2 mini presentations – 2 x 5 points each = 10 points

10% Science Show group project = 10 points

5% evaluation of and by team members = 5 points

Participation –10%

Just showing up is not enough. Your participation grade will reflect your overall participation in class discussions. I will also take into account office visits in which we discuss course material.

Criteria for grading this assignment: frequency of your participation (this includes asking intelligent questions); quality of your comments; your ability to get other students talking by raising questions or debating other students directly; regular and alert attendance.

Grade Scale

A 94-100%; A- 90-93%; B+ 87-89%; B 84-86%; B- 80-83%; C+ 77-79%; C 74-76%; C- 70-73%; D+ 67-69%; D 60-66%; F 0-59%

## Policies

Assignments are due at the beginning of class on the day they are due. THERE ARE NO LATE GRADES OR INCOMPLETES. You will need a note from the Dean to explain extenuating circumstances, such as mono or a family crisis for instance.

Missed classes: You will not earn an A with more than 4 absences.

Academic Honesty

Student-teacher relationships are built on trust.  For example, students must trust that teachers have made responsible decisions about the structure and content of the courses they teach, and teachers must trust that the assignments that students turn in are theirs.  Acts that violate this trust undermine the educational process.

In this class, all assignments that are turned in for a grade must represent the student's own work.  In cases where help was received, or teamwork was allowed, a notation on the assignment should indicate with whom you collaborated.  If you have any questions concerning this policy before submitting an assignment, please ask for clarification.

The following will be considered instances of academic dishonesty: copying a paper from another student; recycling one's own or others' papers from other courses; obtaining part or all of a paper from another source other than your own research without providing quotations and citations; direct quotation from printed, electronic or online sources without providing a citation (including rewording or "patchwork plagiarism"); and the use of specific ideas and interpretations of printed or electronic sources without citation ("theft of ideas").  Any material that you quote should be placed under quotation marks and cited with a footnote or reference immediately following the quoted portion that provides the source.  Do not hide plagiarism by quoting material and then adding a vague reference at the end of the text. You may discuss homework assignments with other students, and you may prepare for papers and class with other students, but the writing assignments should be your own work.  If you quote any source or even take ideas from that source, the source should be referenced completely.  The penalty for plagiarism can be an F in the course.

Copying of class notes and videorecording:  You may share written class notes for friends who have been absent from class for their personal use only.  Any wider distribution outside the classroom, such as posting on the Internet or via a list to anyone not in this class, is prohibited and will result in an F in the course.

**In case of emergency:**

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor’s control. Here are ways to get information about changes in this course.

Course web page (via Blackboard)

Instructor’s email ([svostral@purdue.edu](mailto:svostral@purdue.edu))

Instructor’s phone (History Department, (765) 494-4132)

Schedule

1/10

Introductions

1. Ted Talk: [The Philosophical Breakfast Club](https://www.ted.com/talks/laura_snyder_the_philosophical_breakfast_club)
2. Smithsonian photos (lids and patents)
3. [CES 2017: Why do we even need a Wi-Fi hairbrush?](http://usat.ly/2hWDKXS)

SECTION 1: BIG IDEAS

1/12

America as Technology

1. Leo Marx, *The Machine in the Garden* (1964), chap. 1.
2. Jeffrey L. Meikle, "Leo Marx's *The Machine in the Garden*," *Technology and Culture*, Volume 44, Number 1(January 2003): 147-159

1/17

Technology as Politics

1. Langdon Winner, “Do Artifacts Have Politics?”
2. In-class Video: New York: A Documentary Film (Episode 7: The City and the World - Part 4 "Moses on the Move")

1/19

Technology & History

1. Merritt Roe Smith, “Technological Determinism in American Culture,” in *Does Technology Drive History*? (1994): 1-35.
2. Mini presentation

1/24

Technological Sublime

1. David Nye, "Intro," *American Technological Sublime* (MIT Press, 1994).
2. In Class Video: Monument to the Dream

1/26

Technological Fix

1. Lisa Rosner, *The Technological Fix: How People Use Technology to Create and Solve Problems*, intro, afterward.
2. Paul Ceruzzi, "The 'Problem' of Computer-computer Communication, 1995-2000: A Technological Fix?" in Rosner, 203-217.
3. All: Brainstorm examples & consequences of the technological fix

SECTION 2: BIG SYSTEMS

1/31

Electrification

1. Thomas P. Hughes, “The Electrification of America: The System Builders,” *Technology and Culture*, 20 (1) (1979): 124-161.
2. Mini presentation

2/2

Housework

1. Ruth Schwartz Cowan, *More Work for Mother: The Ironies of Household Technology from the Open Hearth to the Microwave* (intro, ch. 4).
2. Mini presentation

2/7

Automobility

1. Karel Williams, Colin Haslam, John Williams, "Ford versus Fordism: The Beginning of Mass Production?" *Work, Employment & Society* 6.4 (December 1992): 517-555.
2. David Gartman, "Harley Earl and the Art and Color Section: The Birth of Styling at General Motors," *Design Issues* 10.2 (Summer 1994): 3-26.
3. Mini presentation

SECTION 3: Talking about Science & Technology

2/9

Metaphor in Science & Technology

1. Theodore L. Brown, Chap 1 & 2 in *Making Truth: Metaphor in Science*, University of Illinois Press, 2003.
2. Mini presentation

2/14

Metaphor in Science & Technology

1. Ron Eglash, “Broken Metaphor: The Master-Slave Analogy in Technical Literature,” *Technology & Culture*, 48.2 (April 2007).
2. Upchurch and Simona Fojtova, “Women in the Brain: A History of Glial Cell Metaphors,” *NWSA Journal* 21.2 (2009): 1-20.
3. Mini presentation

2/16

Metaphor in Science & Technology

1. Carol Cohn, “Sex & Death in the Rational World of Defense Intellectuals” Chap 9 in *Women, Science & Technology*
2. Rachel Weber, “Manufacturing Gender in Commercial and Military Cockpit Design,” *Science, Technology and Human Values*,” Vol. 22, No. 2 (Spring 1997): 235-253.
3. In Class: Progress report & update of metaphor analysis
4. DUE: Science Metaphor paper

2/21 Meet at the Archives

2/23 Archives on your own

2/28

1. Debra Benita Shaw (2004) BODIES OUT OF THIS WORLD: the space suit as cultural icon, *Science as Culture*, 13:1, 123-144.
2. Video: [*When We Left Earth*](http://dsc.discovery.com/tv/nasa/nasa.html)
3. DUE: Topic for space flight archive project

SECTION 3: Who counts in STEM?

3/2

1. Rayvon Fouché, *Black Inventers in the Age of Segregation* (Baltimore: Johns Hopkins University Press, 2003); intro, chap. 1.
2. Rayvon Fouché and Sharra Vostral, "'Selling' Women: Lillian Gilbreth, Gender Translation, and Intellectual Property." *Journal of Gender, Social Policy & the Law* 19.3 (2011): 825-850.
3. Mini presentation

3/7

1. Heather Paxson, "Post-Pasteurian Cultures: The Microbiopolitics of Raw-Milk Cheese in the United States," *Cultural Anthropology* 23.1 (2008) 15-47.
2. Stefan Helmreich, "*Homo Microbis*: The Human Microbiome, Figural, Literal, Political," *Thresholds* 42 (2014): 52-59.
3. Mini presentation

3/9

1. Jennifer Light. "When Computers Were Women." *Technology and Culture* 40.3 (July 1999): 455-483.
2. Hector Postigo, "Emerging Sources of Labor on the Internet: The Case of America Online Volunteers," *International Review of Social History*, supplement 48 (2003): 205-223.
3. Mini presentation
4. DUE: Draft to your partner

Spring Break

SECTION 4: Consequences & Implications

3/21

Plastic

1. Jeffrey L. Meikle, “Material Doubts: The Consequences of Plastic” *Environmental History*, 2 (3) (1997): 278-300.
2. Allison Xantha Miller, “How we learned to stop worrying and love plastics: an interview with Jeffrey Meikle,” Stay *Free!* Issue #24.
3. [Plastic Turns 100: Bakelite’s Birthday](http://www.npr.org/templates/story/story.php?storyId=11959165)
4. Mini presentation

3/23

Plastic

1. Video: *Tapped*
2. DUE: Comments & Check sheet to your draft partner

3/28

Nuclear

1. Michael Smith, "Advertising the Atom," from Chapter 7 "Selling" Nuclear Energy, in Carroll Pursell, *American Technology* (Boston: Blackwell Publishers, 2001); 206-237.
2. Mini presentation

3/30

Nuclear

1. Documents, Chapter 7 "Selling" Nuclear Energy, in Carroll Pursell, *American Technology* (Boston: Blackwell Publishers, 2001); 237-252.
2. DUE: Space Flight Archive Paper

4/4

Processed Food

1. Carolyn de la Pena, *Empty Pleasures: The Story of Artificial Sweeteners from Saccharin to Splenda* (UNC Press, 2010); excerpts.
2. Mini presentation

4/6 Meet with Groups – No class

4/11

Hormones

1. Nelly Oudshoorn, “The Birth of Sex Hormones” (*Feminism and the Body*, 87-117).
2. Sarah Richardson, "Sexing the X: How the X Became the 'Female Chromosome,'" *Signs: Journal of Women in Culture and Society*, 37.4 (2012): 909–33.
3. Mini presentation

4/13

Scientific Toys

1. Gerard L'E. Turner, "Scientific Toys," *The British Journal for the History of Science*, Vol. 20, No. 4 (Oct., 1987): pp. 377- 398.
2. All: bring in a scientific toy, or an image, for discussion

4/18 Group Project: Science Shows

4/20 Group Project: Science Shows

4/25

Modern Design

1. In class Video: *Helvetica*

4/27 Final wrap-up; progress report on final project

5/3 Final project due