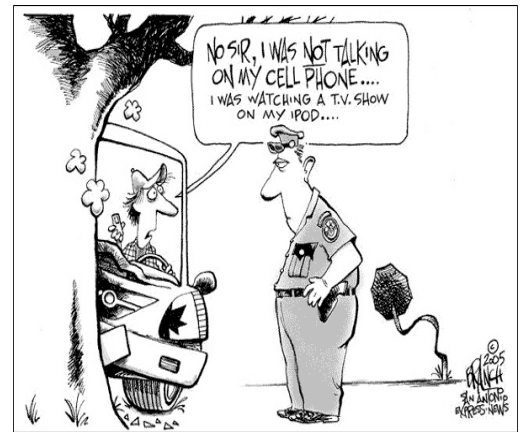




Beauty . . . Grace . . . Speed . . . Power

Patroness of Travel, the living Spirit of modern Railroading
beckons into the fairyland of the Rockies.



THE HISTORY OF TECHNOLOGY

CULTURE AND CONTEXT

Fall 2006 Course Syllabus

THE HISTORY OF TECHNOLOGY**Culture and Context**

Course Syllabus

Instructor Information

Name: Robert Martello
Office: Olin Center 355
Office phone: 781-292-2532
Email: robert.martello@olin.edu
Office Hours: By appointment

Course Information

Course Number: AHSE1100
Course Nickname: "Hot"
Meeting Time: Mondays and Thursdays, 10:00 AM to 11:50 AM
Meeting Location: AC 213
Course email list: hot@lists.olin.edu
Course Website: <http://ahs.olin.edu/ahswiki/HistOfTech>
Coolness Factor: Off the charts

Learning Objectives

The philosophy and main objectives of this course are embodied in the following goals:

1. **Learn about historical narratives.** We will read historical narratives that describe the development, modification, and impact of technologies in different places and times and learn to identify the author's intent and criticize the style, content, and impact of each. We ask questions such as:
 - a. What are the components of a narrative?
 - b. What techniques make narratives more (or less!) effective?
 - c. How are narratives similar or different across disciplines such as history and literature?
 - d. How do narratives utilize context for the study of important critical or ethical questions?
Related question: Which contexts (ethical, historical, cultural...) are most useful to engineers in the pursuit of their careers?
2. **Learn to apply analytical themes to historical case studies.** We will work with analytical techniques centered on some of the main themes of this course:
 - a. **Technology and politics.** What is the relationship between technology and politics in different places and times? When and how do technologies have political (e.g.,

- democratic or authoritarian) qualities? This question requires an understanding of the structure and goals of different government types, the values and processes that shape technologies, and the costs and impacts of different technological systems.
- b. **Technology and culture.** How do we define technology? Is it inherently separate from human beings and societies or does it encompass them? How are technologies a product of their societies? What are some of the ways that technologies influence societies? What are technological systems and how are societies and cultures a part of them?
 - c. **Technology and the environment.** What are the environmental components of technological systems? How does the environment affect technological development and modification and use? How do technologies impact the environment, and how might this affect our definition and evaluation of these technologies?
3. **Develop communication skills.** In this course, you will craft a variety of communication deliverables, including journal assignments, a comparison paper draft and revision, a peer editing critique, a researched paper, and a researched presentation with a website deliverable. (*NOTE: the specific assignments for this course are described in ghastly detail in the **Assignments Supplement**.*) You will also participate in class discussions every day. These activities are aimed at development of the following categories of effective communication:
- a. **Organization and structure:** Papers, presentations, and other deliverables will communicate a clear goal, provide and follow a logical structure governed by the assignment's goals, and orient the audience in terms of how the deliverable is progressing towards its goal (e.g., strategic use of transitions, topic sentences/ideas, etc.).
 - b. **Analysis:** Assignments will have a clear and significant goal or goals. These goals will be achieved through a combination of compelling logical reasoning and plausible, detailed analysis of evidence.
 - c. **Evidence and support:** Assignments will include an appropriate amount of specific evidence to support the deliverable's goal, while also observing and responding to inconsistencies in the evidence. Evidence will be integrated into the deliverable's structure, i.e., the author will introduce and explain the meaning and relevance of the evidence. Evidence will be appropriately referenced with footnotes.
 - d. **Mechanics and Style:** written, spoken, and creative deliverables will follow the appropriate guidelines pertaining to grammar, word usage, sentence length and structure, etc. All written, oral, and graphical deliverables must be clear, compelling, and effective.
 - e. **Professionalism:** Assignments and discussions will convey analyses that are both significant and appropriate to the study of history. In particular, you must use proper methodology for academic work in history (e.g., correct use of footnotes, breadth and depth of research, etc.), anticipate your audience (e.g., presentations will engage and educate their audience, papers and presentations will strike an appropriate balance between formality and creativity), and work effectively in teams.
 - f. **Constructive criticism.** This course offers multiple opportunities to give and receive constructive, critical feedback about one another's written and oral contributions. We will learn to offer critique by asking critical questions and narrating our experience as the audience of a particular work. We will learn to receive critique by first and foremost working to understand critical comments. Your constructive critique skills will be developed through class discussions, commentary on one of your colleague's papers, and a character building exercise involving an enraged yak and a bottle of vanilla coke.
 - g. **Critical reading:** This course offers multiple opportunities to read carefully and critically. Students will pose and discuss critical questions about readings, mine readings for multiple interpretations or points of view, compare and contrast readings to deepen understanding of content, and analyze readings to better understand a writer's use of composition and rhetoric.

4. **Draw and encourage connections between “AHS” (Arts, Humanities, and Social Sciences) and technical subjects.** This foundation course will help you overcome the boundary between technical and non-technical disciplines. We will explore ways that historical techniques and principles make you a better engineer, as well as ways that you can bring technical strategies to bear on historical problems and topics. We will also study the intersection between these fields by looking at individuals and organizations that incorporate ethical, cultural, political, environmental, scientific, and technical components.
5. **Explore the relationship between different AHS fields.** Although this course is first and foremost a proud member of the history (or history of technology, if you will) discipline, we will strive wherever possible to introduce related AHS fields and investigate their methods, questions, and content. We will introduce concepts from philosophy, economics, political science, and literature (plus extra intellectual treats, including student-volunteered connections).
6. **Have a great time.** We *will* have fun. Oh yes.

Competencies

This course primarily develops and assesses the **communication, contextual understanding, and qualitative analysis** competencies. These competencies closely relate to the learning objectives listed above and to the feedback you will receive on all of your assignments.

This course also develops the **teamwork** and **lifelong learning** competencies to lesser degrees. These competencies will be developed during this course but not explicitly evaluated.

I might attempt to address the **food and beverage consumption** competency if sufficient interest is exhibited by the students.

Required Texts

The following three required texts are available in the Babson bookstore:

1. *Major Problems in the History of American Technology*, by Merritt Roe Smith and Gregory Clancey (Houghton Mifflin, 1998).
2. *Lowell: The Story of an Industrial City (Official National Park Handbook, Handbook 140)*.
3. Pamphlet: *Technology and Society in Ming China, 1368-1644*, by Francesca Bray (American Historical Association Publication, 2000, www.theaha.org).

The next texts are not at the Babson bookstore, so you should order them immediately or plan to borrow them from a friend or use the library copies:

4. *Guns, Germs, and Steel*, by Jared Diamond (ISBN 0393317552, Norton Publishers, 1999) – note that many used copies of this book should be floating around Olin’s campus
5. Science fiction text to be selected on the first day of our class

We will also use several online materials, listed below in the calendar section of the syllabus.

Reading packets will be distributed throughout the course on a “need to know” basis whenever you least expect them (or you could read the last section of this syllabus and see the exact plan).

Writing Tutors

You are encouraged to contact the writing tutors at any time with any question regarding any issue or assignment for this course. I urge and beg you to do this because it will help you maximize your skill development and fast-track you for future coursework. The “dedicated” tutor for our course is Anna von Reden (we win!), but you can contact all of them at writingtutor@lists.olin.edu.

Random Course Policies

- **Attendance**
 - Since this is a discussion class, attendance is required and will be considered in computing your grade.
 - If you are too sick to come to class ... well, don't come to class! Focus on getting healthy. Please contact me as soon as you can – before class if possible, or at the first opportunity after class if necessary. I will help you make up the missed material.
 - If you have a different reason for missing class, contact me as early as possible.
 - Perfect attendance will be rewarded at the end of the year with a tiny piece of sour candy. You can replace the sour candy with an equally small piece of gum if you obtain written permission from the Dean of Student Life.
 - Students cannot send an imaginary friend to class in their stead, even if they claim the imaginary friend has completed the reading. We have tried this in the past and the discussion quality suffered noticeably.
- **Lateness** is disruptive. I will make sure we end on time, and you should arrive on time.
- **Class participation** is a vital learning objective of this course and will play a substantial role in determining your grade and in making you a better engineer and scholar (I kid you not). If participating in discussions is stressful in any way, please contact me and we'll talk.
- **Laptop use in class:** Laptop use in the past has proven distracting to me and to other students, so only use your laptop for taking notes or for sanctioned activities (i.e., I may ask for some interactive web research during a class). Please keep your screen folded down at a twelve to nineteen degree angle until you are ready to type something, at which point you should raise the screen, type whatever you like, and lower it. No web, email, or AIM. Thank you!
- **Honor code issues:** the honor code helps me focus on cool things, like designing interesting PowerPoint slides and researching fascinating lectures, and saves me from the need to worry about dishonesty, plagiarism, cheating, or food fights. Please follow the spirit of the honor code and ask me to clarify anything that is unclear. Primary honor code issues include:
 - **Plagiarism:** we will discuss this in class, but in general you must always take extreme care to acknowledge the source of all quotes, content, and theories. When in doubt, cite. I am particularly impressed with the plagiarism discussion at: http://www.historians.org/governance/pd/Curriculum/plagiarism_intro.htm
 - **Collaboration:** see the description of each assignment below for exact guidelines on the degree of allowable collaboration. If you receive help where help is allowed, you must acknowledge it in a brief note at the end of the assignment. If you are in doubt, ask me beforehand if you can collaborate.
 - **Writing tutors:** you are **always** allowed to seek help from the writing tutors – just remember to tell me this at the end of the assignment (it will not hurt your grade)!
 - **Hurling water balloons:** let's call this a tentative “no.”
- **Time expectations:** A diligent and reasonably efficient student, supplied with plenty of Vanilla Coke, should spend about 12 hours per week doing everything associated with this course

(including attending class). If you spend more than 12 hours a week on this course please contact me and we'll do something.

- **Feedback:** feedback is an *essential* component of this course. I will request feedback from a specific group of students at the end of each class and then open the floor to all students. We will have a feedback day in the middle of the semester, at which time we will discuss how to make the course more “groovy” for everyone. I urge you to contact me at any point with suggestions or concerns that you do not wish to raise in public.

Policy on PEZ

“PEZ” will play an important, if not central, role in our class. You are encouraged, but not required, to procure a “PEZ” dispenser of your choosing at the earliest possible opportunity. This “PEZ” dispenser will qualify you for various edible handouts throughout the year and will also enter you in the “Most Interesting PEZ Dispenser Competition” to be held on October 16, 2006. Will there be prizes? Oh yes. Oh yes indeed.

Grading

First semester Olin students can only receive a grade of “pass” or “no credit” on their official transcript. I will still grade all assignments (and the course as a whole) on the ABCDF scale even though the transcript will not record this. These grades will be assigned in accordance with the guidelines provided in the Student Handbook.

Your grade will be based on the following breakdown. Assignments are described in horrifying detail in the **Assignments Supplement**.

Course Assignment	Percentage
Analysis notes and journal one	10
Journal two and class discussion leading	10
Phase three group activities	10
Paper one first version	15
Paper one revision or commentary on colleague paper	10
Paper two deliverable (paper)	20
Paper two presentation and discussion leading	10
Participation and attendance	15 (*)
TOTAL	100

(*) Attendance and participation can impact more than 15% of your grade in exceptional cases.

Semester Schedule

Note: all assignments (reading and writing) are DUE on the date listed.

WEEK 1	Thursday Aug. 31
	<p style="text-align: center;">Introduction!</p> <p>Choose journal groups and topics/dates; in-class survey and discussion; course goals; select sci-fi text... Let the fun begin. Oh yes.</p> <p style="text-align: right;">Feedback: Group One</p>

WEEK 2	Monday Sep. 4	Thursday Sep. 7
	<p style="text-align: center;">LABOR DAY: NO CLASS!</p> <ul style="list-style-type: none"> • Buy a <i>Guns Germs and Steel</i> book • Buy required course readings at Babson bookstore or elsewhere • Complete course survey • Visit course WIKI page and contribute in some way • Read ahead, for fun ... come on, this is fun! 	<p style="text-align: center;">Native American Technology, Environment, and Culture</p> <p style="text-align: center;">ANALYSIS NOTES DUE!</p> <p>Reading:</p> <ul style="list-style-type: none"> • <i>Smith and Clancey</i> pages 7-13 (<i>Do Artifacts have Politics</i>) and 17-21 (<i>Masculinity and Technology</i>) • <i>Iroquois and Pima creation myths: Annotation 1.1</i> at http://www.norton.com/inventing/interface/ch01/ch1_annotations.htm • <i>Smith and Clancey</i> pages 26-52, 199-202 <p style="text-align: right;">Feedback: Group Two</p>

WEEK 3	Monday Sep. 11	Thursday Sep. 14
	<p style="text-align: center;">Guns, Germs, and Steel</p> <p style="text-align: center;">Be ready to present your readings to the class!</p> <p>Reading:</p> <ul style="list-style-type: none"> • HANDOUT ONE: <i>Paradigms and Scientific Revolutions</i> • <i>Guns Germs and Steel:</i> <ul style="list-style-type: none"> ○ Group one read chapters 4, 5, and 6 ○ Group two read chapters 4 and 7 ○ Group three read chapters 4 and 8 ○ Group four read chapters 4 and 9 ○ Group five read chapters 4 and 10 <p style="text-align: right;">Feedback Group Three</p>	<p style="text-align: center;">Guns, Germs, and Steel</p> <p style="text-align: center;">JOURNALS BEGIN HERE – GROUP ONE!</p> <p>Reading:</p> <ul style="list-style-type: none"> • <i>Smith and Clancey</i> pages 13-15: <i>Social Shaping of Technology</i> • <i>Guns Germs and Steel</i> Chapter 12 (pages 215-238) and Chapter 13 (pages 239-264) <p style="text-align: right;">Journal Group One; Feedback Group Four</p>

WEEK 4	Monday Sep. 18	Thursday Sep. 21
	<p style="text-align: center;">Technology and Society in Ming China</p> <p>Reading:</p> <ul style="list-style-type: none"> • HANDOUT TWO (Karl Marx, Adam Smith) • Francesca Bray pamphlet ("Technology and Society in Ming China") pages 1-23; 43-53 <p style="text-align: center;">Journal Group Two; Feedback Group Five</p>	<p style="text-align: center;">Lowell Mills</p> <p>Reading:</p> <ul style="list-style-type: none"> • HANDOUT THREE (technological systems) • Lowell Pamphlet pages 1-49 <p style="text-align: center;">Journal Group Three; Feedback Group One</p>

WEEK 5	Monday Sep. 25	Thursday Sep. 28
	Ming China, Lowell, Textiles, and Labor	Thesis Workshop and Governments
	PAPER ONE THESIS (Phase One) DUE 8:00 PM WEDNESDAY SEPTEMBER 27	
	<p>Reading:</p> <ul style="list-style-type: none"> • HANDOUT FOUR (ethics text) • Francesca Bray pamphlet ("Technology and Society in Ming China") pages 55-63 and 65-66 • Lowell Pamphlet pages 50-62 • Smith and Clancey pages 146-151 <p style="text-align: center;">Journal Group Four; Feedback Group Two</p>	<ul style="list-style-type: none"> • Bring your laptop today! • Read prior thesis statements and prepare a critique of the strengths and weaknesses of each one • Read Chapter 14 of <i>Guns, Germs, and Steel</i> (especially 267-288) • Think a bit about Olin and USA government types <p style="text-align: center;">Feedback: Group Three</p>

WEEK 6	Monday Oct. 2	Thursday Oct. 5
	<p style="text-align: center;">Paul Revere</p> <p>Reading:</p> <ul style="list-style-type: none"> • HANDOUT FIVE: US Constitution and Political Science Sampler • HANDOUT SIX: Paul Revere!!! <p style="text-align: center;">Journal Group Five; Feedback Group Four</p>	<p style="text-align: center;">NO CLASS – CAREER INITIATIVES DAY</p> <p>Read sci-fi text (due next Tuesday). Write paper one draft. Oh yes.</p>

WEEK 7	Monday Oct. 9	Tuesday Oct. 10	Thursday Oct. 12
	COLUMBUS DAY – NO CLASS	Sci-Fi!	Telephone Technology and Culture
	<p style="text-align: center;">PAPER ONE COMPLETE DRAFT (Phase Two) DUE</p> <p>Read sci-fi text (due tomorrow). Work on paper one draft. Oh yes. Yes indeed.</p>	<p>Olin Monday! Yes we do have class today!</p> <p>Reading:</p> <ul style="list-style-type: none"> • The complete science fiction text that we selected on day one <p style="text-align: center;">Feedback Group Five</p>	<p>Reading:</p> <ul style="list-style-type: none"> • Smith and Clancey pages 233-246; 255-263 • Other reading TBD <p style="text-align: center;">Feedback Group One</p>

WEEK 8	Monday Oct. 16	Thursday Oct. 19
	Feedback!	Scientific Management
	<p style="text-align: center;">PAPER TWO PROPOSAL (Phase One) DUE (at night)</p> <p>Discuss possible improvements, recap big learning messages, pick movie for end of semester, and best of all, the Most Interesting Pez Dispenser Competition. We will also work a bit on paper two.</p> <p style="text-align: center;">No Journals or Feedback</p>	<p>Reading: Smith and Clancey pages 267-299</p> <p style="text-align: center;">Journal Group One; Feedback Group Two</p>

WEEK 9	Monday Oct. 23	Thursday Oct. 26
	Automobiles and Mass Production	Technology in World War II
	<p>Reading:</p> <ul style="list-style-type: none"> • <i>Smith and Clancey</i> pages 312-328; 337-353 • <i>Annotation 22.1</i> at: http://www.wwnorton.com/inventing/interface/ch22/ch22_annotations.htm <p style="text-align: right;">Journal Group Two; Feedback Group Three</p>	<p style="text-align: center;">FEEDBACK OR REVISION OF PAPER ONE (Phase Three) DUE</p> <p>Readings:</p> <ul style="list-style-type: none"> • <i>Read annotations 25.1, 25.3, and 25.4</i> at: http://www.wwnorton.com/inventing/interface/ch25/ch25_annotations.htm • <i>Read annotation 26.3</i> at http://www.wwnorton.com/inventing/interface/ch26/ch26_annotations.htm • <i>Read annotation 27.1</i> at http://www.wwnorton.com/inventing/interface/ch27/ch27_annotations.htm <p style="text-align: right;">Feedback Group Four</p>

WEEK 10	Monday Oct. 30	Thursday Nov. 2
	Computers and Computing	Politics and Space Technology
	<p>Reading:</p> <ul style="list-style-type: none"> • <i>Smith and Clancey</i> pages 444-445; 454-462; 476-496; 516-518 • <i>The Conscience of a Hacker</i>, at http://www.ghostwheel.com/merlin/businesslike/hacker.html • <i>Visit</i> http://www.spack.org/wiki/InTheBeginningWasTheCommandLine and read "Introduction," "MGBs, Tanks, and Batmobiles," and "Morlocks and Eloi at the Keyboard" <p style="text-align: right;">Journal Group Three; Feedback Group Five</p>	<p>Reading:</p> <ul style="list-style-type: none"> • "Democracy and Super Technologies: The Politics of the Space Shuttle and Space Station Freedom" by W.D. Kay, <i>Science, Technology, and Human Values</i> 1994, volume 19 number 2, pages 131-151. Visit JSTOR link from the http://library.olin.edu/ page, then "Browse," "Alphabetical List of Journals," and select <i>Science, Technology, and Human Values, Volume 19 number 2</i>. • <i>Annotation 30.3</i> at http://www.wwnorton.com/inventing/interface/ch30/ch30_annotations.htm • <i>Annotation 32.4</i> at http://www.wwnorton.com/inventing/interface/ch32/ch32_annotations.htm <p style="text-align: right;">Journal Group Four; Feedback Group One</p>

WEEK 11	Monday Nov. 6	Thursday Nov. 9
	Biotech Case Study	Evidence Workshop Research Meeting with Dee Magnoni!
	<p>Reading:</p> <p>"Making Dollars out of DNA" by Sally Smith Hughes, <i>Isis</i> 2001, volume 92 pages 541-575. Visit JSTOR link from the http://library.olin.edu/ page, then "Browse," "Alphabetical List of Journals," and select <i>Isis, Volume 92 number 3</i>.</p> <p style="text-align: right;">Journal Group Five; Feedback Group Two</p>	<p style="text-align: center;">PAPER TWO (Phase Two) OUTLINE DUE</p> <p>Reading:</p> <ul style="list-style-type: none"> • <i>Read evidence samples from last year and prepare a critique of each one: what makes it effective, what makes it confusing or weak?</i> • <i>Think about your paper two topic, be ready to work on it in class (including library visit)!</i> <p style="text-align: right;">Feedback Group Three</p>

WEEK 12	Monday Nov. 13	Thursday Nov. 16
	The Pest War Reading: <i>Smith and Clancey</i> pages 383-410 and 422-426; skim the essay on 410-422. <i>In-class activity: come to class "in character" based upon an assigned role, and be ready to advocate your position.</i> Feedback Group Four	Ethics and Computers PAPER TWO (Phase Three) TEAM PROPOSAL DUE Reading: <ul style="list-style-type: none"> • Handout on Ethics (Erin McCusker) • Wikipedia articles "Why Wikipedia is so great," "Criticism of Wikipedia," "Myspace," and at least two other articles on Wikipedia's culture that you locate • Additional readings TBD (some will be selected by students as part of the group activity) • Some Team Project Planning (plus opportunity to write team proposals) in class today Feedback Group Five

WEEK 13	Monday Nov. 20	Thursday Nov. 23
	NO CLASS... THANKSGIVING BREAK!	HAPPY THANKSGIVING! <i>Turkey turkey, gobble gobble, eat until you wobble wobble.</i>

WEEK 14	Monday Nov. 27	Thursday Nov. 30
	Modern Sci-fi Readings: <ul style="list-style-type: none"> • <i>OwznOred</i>, by Cory Doctorow (online) • Also...let's watch some <i>TREK!</i> • Other reading TBD Feedback Group One	Natural Capitalism Readings: <ul style="list-style-type: none"> • <i>Natural Capitalism</i> chapters one and two, available at: http://www.natcap.org/sitepages/pid20.php • Homework activity: locate examples that test the Natural Capitalism thesis ... or apply it to Olin? Feedback Groups Two

WEEK 15	Monday Dec. 4	Thursday Dec. 7
	Movie Madness Reading: TBA. Feedback Group Three	Presentations Reading: Determined by presenters Feedback Group: None!

WEEK 16	Monday Dec. 11
	Last Day! Presentations! PAPER TWO (Phase Three) FINAL PAPER AND PRESENTATIONS DUE
	Presentations and closing ceremonies. Last class! Fare ye well.