

Syllabus

Thursday, September 10, 2020

12:24 PM



History of
Technolo...

The History of Technology

A Cultural and Contextual Approach

Course Syllabus

Course Information

Course Number:	AHSE 1100
Course Nickname:	"HoT"
Meeting Time:	Tuesday and Thursday, 2:00 PM to 3:30 PM
Classroom:	https://olin.zoom.us/j/94377325728?pwd=RWFYTXp0eDEyZElHcXZyaVJYY09GUT09
Course Email List:	hot@lists.olin.edu
Writing Tutor:	Laurel Mitton
Course Mascot:	A dragon perched atop a hoard of technologies that span humanity's past, present, and future
Coolness Factor:	Off the charts, effectively immeasurable and inconceivable

Instructor Information

Name:	Rob Martello
Office:	Milas Hall 263 (MH 263)
Office phone:	781-292-2532
Email:	robert.martello@olin.edu ← best way to contact me; don't hesitate to use it!
Theme song:	Be good to yourself (Journey)

Course Overview

The History of Technology (or "HoT") is a fall AHS foundation course that explores the role of the liberal arts in an engineering education. We will spend this semester identifying and developing skills, stories, and perspectives that will help you throughout your career. We accomplish this through the combination of analysis (technological themes) and narrative (historical case studies), encapsulated in the glorious phrase "the evidence suggests." You also get to participate in an educational experiment this semester, which harkens back to Olin's early curricular exploration. We will pilot a new assessment strategy that tests different learning objective-based metrics and a new approach to instructor feedback. The results from this experiment will inform other courses and lead to new initiatives. Fasten your seatbelt, crank up that 80s playlist, and enjoy the ride!

Learning Objectives

Everything we do this semester boils down to the following list of learning objectives that will be the basis of your assignments, our class activities, my instructor feedback, and your final assessment.

1. **Historical content interpretation and use.** Historical narratives describe the development, modification, and impact of technologies in different places and times. We will learn to squeeze the best messages out of these narratives and use them to support our own arguments.
2. **Critical thinking.** Critical thinking activities include recognizing assumptions, evaluating information, applying knowledge, drawing conclusions, and solving problems. Our readings, discussions, and assignments will emphasize the critical analysis of common themes in technology studies, such as...
 - understanding technology as a product of a specific context (i.e., a specific time and culture)
 - converting technologies into technological systems
 - unraveling the ethics of technological development and application
 - exploring the intertwining of technology and the environment
 - using critical reflection to integrate technology and engineering with your own story

In addition to exploring these awesome themes, we will learn how to develop our own theses and analysis through the application of persuasive arguments and supportive evidence.

3. **Communication.** In this course, you will craft a variety of communication deliverables, described in ghastly detail in the **Assignment Descriptions**. You will also participate in class discussions and innovative character-building exercises involving an enraged yak and a half-full can of vanilla coke. These activities will help us develop communication practices such as critical reading techniques, critical reflection, organization and structure, mechanics and style, narrative construction, and the integration of creativity and rigor.
4. **Self-directed learning.** All our assignments and class activities require that you take initiative, make plans, manage your time, set goals, reflect, respond to adversity, and rock on. Throughout this semester you will receive a growing degree of responsibility and autonomy, as well as scaffolding that will allow you to take on greater challenges and fail in a constructive and educational way.
5. **Personal and professional identity development.** This course insists that you place yourself – your own goals, passions, and story – into our discussions and analysis through a combination of reflection and action. What are your reasons for taking this class, for pointing your career in this direction? What is your story? What are your personal values and ethics?
6. **Prioritize doing good in the world.** Historical studies endeavor to make sense of past events and develop an understanding that informs our approach to the future. Through class discussions, emphasis upon ethical principles and ethical actions, and a growing contextual appreciation of our society's challenges and opportunities, we will continually explore ideas and approaches that empower and incentivize us do good in the world.
7. **Collaboration and teamwork.** This class is a fully collaborative endeavor. By continually working together, listening to, and learning from each other, we will form a cohesive and productive classroom community. We're counting on you to be a constructive member of the team, and ideally you will carry this collaborative spirit into a lifetime of inspiring endeavors.¹

¹ That line just gave me goosebumps. Could this class possibly be any cooler?

Assessment, Feedback, and Grading

First semester Olin students can only receive a grade of “pass” or “no record” on their official transcript. Hey, I don’t make the rules. 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.

In addition, I will use learning objective-based grading as the basis for your assessments. Your final grade will be based on the following weighted average of assignments, with each assignment divided into one or more relevant learning objectives.

Course Assignment	Percentage of Final Grade	Learning Objectives Assessed
Participation and attendance	20 (*)	Communication Critical Thinking Self-Directed Learning Identity Development Collaboration and Teamwork
Analytical Writing Exercises (total)	15	Communication Critical Thinking
Presentations	20	Communication Critical Thinking Historical Content Collaboration and Teamwork
Research Paper	30	Communication Critical Thinking Historical Content
Personal Paper	10	Communication Historical Content Identity Development
TOTAL	100	

(*) Attendance and participation will impact more than 20% of your grade in exceptional cases.

These assignments are described in horrifying detail in the **Assignment Descriptions**.

Required Texts

We will use excerpts from *Major Problems in the History of American Technology*, by Merritt Roe Smith and Gregory Clancey (ISBN 0-669-35472-4, Houghton Mifflin, 1998) throughout the semester. We will also read selections from books such as *Guns Germs and Steel*, *Collapse*, *Inviting Disaster*, *A Social History of American Technology*, *What You Should Know About Politics*, *Empires of Light*, and *Powering the Dream*, listed below in the calendar section of the syllabus. You can borrow e-texts of these readings from the library, which has copies of all of them on reserve. No purchase is required.

We will also rely upon many multimedia “readings” such as Ted Talks (which are always fun), online articles and short stories, videos, and perhaps even some additional materials too thrilling for words.

Reading packets and handouts will be distributed throughout the semester on a “need to know” basis whenever you least expect and most need them (much like Batman™).

Writing Tutors

You are encouraged to contact the writing tutors at *any* time with *any* question regarding *any* assignment for this course. I beg you to do this: tutors increase your learning and productivity. The “dedicated” tutor for our course is the amazing **Laurel Mitton**, emailable at laurel.mitton@students.olin.edu, but you can contact all tutors at olin.writing.tutor@gmail.com. If you prefer to deal directly with Olin’s fabulous writing consultant, her name is Gillian Epstein, emailable at gillian.epstein@olin.edu. Always email your work to the tutor (or Gillian) in advance of your meeting, along with the assignment instructions. This ensures that they will make the most of your session and teach you to prepare, present, and promulgate pragmatic pulchritude.

Random Course Policies

Attendance is required and will be considered in computing your grade.

- If you are too sick to join our class, no worries! 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 you can. I want to help.
- 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 a 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 the imaginary friend has completed all readings for that day.

Remote learning is now a thing. We will hold all classes over zoom, although I will do my best to sneak to campus a few times and hold an outdoor, safely distanced class. I’ll give advance notice if we are doing that. But expect most classes to take place online, which means we all need to follow the proper zoom protocols (we will discuss them) and try to keep each other engaged. This is a challenge... but also a fascinating look at how technology impacts society and culture. Let’s make it work, together!

Lateness is uncool. I will end on time, and you should arrive on time. Extensive lateness will invite you a stern look and possibly an arched eyebrow in the most egregious cases. (But seriously, don’t be late.)

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 warlord. If participating in discussions is stressful in any way, please contact me and we’ll talk.²

Canvas: good news: we will use Canvas to track all class assignments and expectations! Bad news: I am not skilled at using Canvas! Let the wild rumpus begin.

² Do you see what I just did there? Please observe the irony of using a “talk” to resolve a problem with “discussions.” This is just one small example of the detailed planning that went into every aspect of this course.

Honor code issues: the honor code helps us focus on cool intellectual concepts 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:** always take extreme care to acknowledge the source of **all** quotes, content, and theories. Even if you reword the original material, or if it merely informs your own argument, you must cite it as an influence. **When in doubt, cite.** I am particularly impressed with the plagiarism discussion at: http://www.historians.org/governance/pd/Curriculum/plagiarism_intro.htm. A longer and more piquant discussion of plagiarism is provided in the **Assignment Descriptions**.
- **Collaboration:** see the description of each assignment in the **Assignment Descriptions** for 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. When in doubt, ask me in advance if you can collaborate and I will respond in rhymed verse.
- **Writing tutors:** you can **always** seek help from the writing tutors – just tell me you did so at the end of the assignment (it will never hurt your grade).
- **Hurling water balloons at your teacher:** let's call this a tentative "no."

Time expectations: A diligent and reasonably efficient student, supplied with plenty of rocky road ice cream, should spend about 12 hours per week doing everything associated with this course (including time spent attending class). If you spend significantly more or less than 12 hours a week on this course, please contact me and we'll do something heroic to achieve the proper alignment.

Feedback: feedback is an essential component of this course. I'll solicit feedback throughout the semester, but I also urge you to contact me at any point with suggestions or concerns.

Accessibility, diversity, and equity: our classroom success depends upon our collective ability to create an environment that is equitable and conducive to achievement and learning for all of us. We will encourage, respect, and learn from diverse opinions and perspectives. If you have a personal situation (illness, accident, family situation...), disability, barriers to learning, or any specific needs that impact your performance, reach out to me and we will co-design whatever accommodations will best help you learn. The briefest "head's-up" email is all that I need. You may also want to check in with Disability Services at Olin, located in Campus Center Room 319a or emailable at disability.services@olin.edu.

Policy on PEZ

"PEZ" will play an important, and possibly central, role in our class. You are encouraged to proudly procure or prominently produce a personalized "PEZ" dispenser, pronto! This "PEZ" dispenser qualifies you for edible handouts throughout the year and enters you in the "PEZ Dispenser Competition" to be held at the semester's midpoint. Will there be prizes and glory? Oh yes. Oh yes indeed.


Semester Schedule

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

WEEK 1	Tuesday Sep. 8 Introduction! <ul style="list-style-type: none"> Course overview: goals, opportunities, PEZ Let the fun begin... and PEZ Oh yes. 	Thursday Sep. 10 Native American Technology and Culture <ul style="list-style-type: none"> Major Problems in the History of American Technology pages 13-15 (Social Shaping of Technology) Major Problems in the History of American Technology pages 26-46 <p>Choose teams A and B for next class.</p>
	No homework, unless you want to skim the syllabus	Due: Analytical Writing Exercise One (before class)
WEEK 2	Tuesday Sep. 15 Paradigms, Writing, and Innovation <ul style="list-style-type: none"> Read HANDOUT ONE: Paradigms and Scientific Revolutions DIVIDE AND CONQUER: <ul style="list-style-type: none"> TEAM A read <i>Guns Germs and Steel</i> chapter 12 (pp. 215-233 only) TEAM B read <i>Guns Germs and Steel</i> chapter 13 (pp. 239-260 only) Watch these TED talks: <ul style="list-style-type: none"> "Charles Leadbeater: The Era of Open Innovation" "Steven Johnson: Where Good Ideas Come From" 	Thursday Sep. 17 Artifacts, Politics, and Energy <ul style="list-style-type: none"> Read Major Problems in the History of American Technology pages 7-13 (Do Artifacts have Politics) Read <i>What You Should Know about Politics</i> pages 167-179, 195-202, and 213-218, you can get it here: https://minuteman.overdrive.com/minuteman-olin/content/media/2670907 Optional fun nuclear energy reading (we will not use it): https://www.smbc-comics.com/soonish/lostchapter/index.html <p>Form energy teams for next week</p>
		Due: Analytical Writing Exercise Two (before class)
WEEK 3	Tuesday Sep. 22 Societal Collapse and Prosperity <ul style="list-style-type: none"> Read <i>Collapse</i> chapters 3 and 14 HANDOUT TWO: Technological Systems 	Thursday Sep. 24 Energy Technologies <ul style="list-style-type: none"> Class presentations today! <p>In class: form Edison and Tesla teams for next session</p>
	Due: RESEARCH PAPER PROPOSAL (Phase Zero of research paper assignment) google doc preliminary signup	Due: Energy Presentation Assignment
WEEK 4	Tuesday Sep. 29 Biography: Edison and Tesla <ul style="list-style-type: none"> <i>A Social History of American Technology</i>, pages 162-165 ("The Electric System" section) <i>Empires of Light</i>, Chapter 6 http://www.asee-prism.org/power-play/ Read/watch an online bio of Edison or Tesla (Wikipedia, biography.com, YouTube...) based on your assigned team. Get ready to advocate for your champion in class! 	Thursday Oct. 1 Thesis Workshop and Research Paper <ul style="list-style-type: none"> Thesis workshop in class Bring your Research Paper proposal to class and be ready to discuss it Read https://www.technologyreview.com/s/401465/10-technology-disasters/ This will help prep for next class! <p>In-class super fun presentation about concept maps</p>
	Due: Analytical Writing Exercise Three (before class)	Due: RESEARCH PAPER PROPOSAL (Phase One of research paper assignment), before class

WEEK 5	Tuesday Oct. 6 Technological Disasters: Blind Spots <ul style="list-style-type: none"> Chapter 2 ("Blind Spot") of <i>Inviting Disaster</i> Read article at http://www.nature.com/news/to-reduce-gender-biases-acknowledge-them-1.22502 Watch TED Talk "Katherine Schulz: On Being Wrong" Watch TED Talk "Jennifer Healey: If Cars Could Talk" 	Thursday Oct. 8 Technological Disasters: Haste and Ethics <ul style="list-style-type: none"> <i>Inviting Disaster</i> Chapter 3 ("Rush to Judgment") Watch TED talk Damon Horowitz "We Need a Moral Operating System" Read pages 1-4, 12-13, and 19-25 (SKIP ALL QUESTIONS) at: https://www.scu.edu/media/ethics-center/technology-ethics/Students.pdf <p>In class: form presentation teams for the context presentations</p>
WEEK 6	Tuesday Oct. 13 FALL BREAK - NO CLASS <ul style="list-style-type: none"> Think about your research paper – the outline is due in a week and you can make some progress on it now! Also, AWE4 is due on Thursday. For that assignment you will locate new readings for our class. You can do this as part of a team. Maybe you should form a team and start locating great sources now! 	Thursday Oct. 15 Engineering to Save the World? <ul style="list-style-type: none"> Watch the TED talk "Peter Diamandis: Abundance is our future" Watch TED Talk "Bill Gates: Innovating to Zero" Read pages 28-30 (SKIP QUESTIONS) of https://www.scu.edu/media/ethics-center/technology-ethics/Students.pdf Read http://www.technologystories.org/which-way-who-says-why/ See AWE4 for other readings you will do – this is FUN <p>Due: Analytical Writing Exercise Four (before class)</p>
WEEK 7	Tuesday Oct. 20 Telephone Networking and Communication <ul style="list-style-type: none"> <i>Major Problems in the History of American Technology</i> pages 233-246; 255-263 Watch TED Talk "Christopher Soghoian: Your Smart Phone Is A Civil Rights Issue" Read https://www.smithsonianmag.com/innovation/texting-isnt-first-new-technology-thought-impair-social-skills-180958091/ <p>Due: Context Presentation, Group One</p>	Thursday Oct. 22 Evidence Workshop, Feedback, and PEZ <ul style="list-style-type: none"> Bring your research paper outline and evidence excerpts, be ready to workshop them Evidence workshop in class Feedback Session PEZ Contest? <p>Select readings for Election Day class</p> <p>Due: RESEARCH PAPER OUTLINE (Phase Two)</p>
WEEK 8	Tuesday Oct. 27 Autos, Mass Production, and Consumerism <ul style="list-style-type: none"> <i>Major Problems in the History of American Technology</i> pages 312-328 <i>Powering the Dream</i> chapter 10 (pages 71-83) Watch TED Talk "Iyad Rahwan: What moral decisions should driverless cars make?" Read https://www.vision.org/consumerism-does-having-more-lead-to-happiness-118 <p>Due: Context Presentation, Group Two</p>	Thursday Oct. 29 Scientific Management, Labor, and Automation <ul style="list-style-type: none"> <i>Major Problems in the History of American Technology</i> pages 267-286 Watch TED Talk "Mike Rowe: Learning from Dirty Jobs" Watch "Humans Need Not Apply" at https://www.youtube.com/watch?v=7Pq-S557XQU Read "Inside an Amazon Warehouse" https://www.nytimes.com/2019/07/03/business/economy/amazon-warehouse-labor-robots.html?module=inline <p>Due: Context Presentation, Group Three</p>

WEEK 9	Tuesday Nov. 3 ELECTION DAY! Politics and Engineers <ul style="list-style-type: none"> Read your chosen chapter of <i>What You Should Know about Politics</i> - https://minuteman.overdrive.com/minuteman-olin/content/media/2670907 Read or skim article about copyright law's inequalities: https://racism.org/articles/basic-needs/propertyland/218-intellectual-property/8238-copyrights-one-way-racial 	Thursday Nov. 5 Computer Origins and Users <ul style="list-style-type: none"> Major Problems in the History of American Technology pages 444-445; 476-486; 496; 516-518 Read https://www.smh.com.au/lifestyle/life-and-relationships/women-were-the-first-computer-programmers-then-men-crowded-them-out-20170822-gy1e8r.html Read "The Conscience of a Hacker", at https://archive.org/stream/The_Conscience_of_a_Hacker/hackersmanifesto.txt Read "A Feature, Not a Bug" at http://www.technologystories.org/a-feature-not-a-bug/ Excerpt from <i>In the Beginning was the Command Line</i> by Neal Stephenson (read to end of Batmobile section)
	Vote!	Due: Context Presentation, Group Four
WEEK 10	Tuesday Nov. 10 AI: Origins and Ethical Implications <ul style="list-style-type: none"> The Promises and Perils of Artificial Intelligence: https://medium.com/@ystvns/the-promises-and-perils-of-artificial-intelligence-why-human-rights-norms-and-the-rule-of-law-40c57338e806 ← SKIM, IT IS LONG TED Talk "Kenneth Kukier: Big data is better data" TED Talk "Daniel Suarez: The kill decision shouldn't belong to a robot" TED Talk "Joy Buolamwini: How I'm fighting bias in algorithms" 	Thursday Nov. 12 Grand Challenges and Research Paper <ul style="list-style-type: none"> Read chapter two of <i>Engineering and Social Justice</i>, "Mindsets in Engineering" Read the NAE Grand challenges document introduction and at least four of the challenges at: http://www.engineeringchallenges.org/challenges.aspx Pick your favorite challenge and do extra reading on it
	Due at the end of class: RESEARCH PAPER TEAM PROPOSAL (Phase Three)	In class, form research paper presentation teams Due at 6:00 PM on Friday: email your colleague four+ pages of your paper so they can offer commentary next week
WEEK 11	Tuesday Nov. 17 Pest War <ul style="list-style-type: none"> Major Problems in the History of American Technology pages 383-410 and 422-426; OPTIONAL: skim the essay on 410-422. In-class activity: come to class "in character" based upon an assigned role and be ready to advocate your position. Wear a relevant costume and win prizes and glory!!! 	Thursday Nov. 19 Science Fiction! <ul style="list-style-type: none"> "Dark They Were, and Golden-Eyed" (Ray Bradbury) – a 1949 story about aliens and assimilation "The Last Question" (Isaac Asimov) – a 1956 story about the origins and endpoint of the universe "Tideline" (Elizabeth Bear) – a 2007 story about a war machine with a new purpose "Exhalation" (Ted Chiang) – a 2008 story about life in a different universe Time to finish your Research Paper!
	Prepare for your assigned in-class role Due: RESEARCH PAPER COLLEAGUE COMMENTARY (Phase Four), before class	Due: RESEARCH PAPER FINAL (Phase Five), by midnight on Friday

WEEK 12	Tuesday Nov. 24	Thursday Nov. 26
	<p>HAPPY THANKSGIVING!</p>  <p><small>Turkey turkey, gobble gobble, eat until you wobble wobble.</small></p>	
WEEK 13	Tuesday Dec. 1	Thursday Dec. 3
	<p>The Internet: Origins and Activism</p> <ul style="list-style-type: none"> Brief history of the Internet at https://www.youtube.com/watch?v=h8K49dD52WA Read "Internet with a Human Face" at https://idlewords.com/talks/internet_with_a_human_face.htm Watch TED talk "Rebecca MacKinnon: Let's Take Back the Internet" Read Scroogled, by Cory Doctorow (available online) at http://craphound.com/scroogled.html or other locations Tech employees and ethics: https://www.vox.com/technology/2018/10/18/17989482/google-amazon-employee-ethics-contracts 	<p>Test Drive Potential New Readings</p> <ul style="list-style-type: none"> Readings today will be FASCINATING. We will test some of your AWE 4 readings and see which ones work best Originators of the best ideas will win un-valuable prizes! Work on your Personal Paper this week... which begins in AWE5 (due by the start of class) <p>Due: Analytical Writing Exercise Five (before class)</p>
WEEK 14	Tuesday Dec. 8	Thursday Dec. 10
	<p>Steve Jobs and Bill Gates</p> <ul style="list-style-type: none"> Read about Steve Jobs and Bill Gates on Wikipedia or biography.com (read thoroughly, at least one complete source for each person) Read https://www.businessinsider.com/the-bill-gates-steve-jobs-feud-frenemies-2016-3 Watch two talks (or read the transcripts): <ul style="list-style-type: none"> Steve Jobs: "How to live before you die" (TED) Bill Gates: Harvard Commencement speech, 2007 	<p>LAST DAY!</p> <ul style="list-style-type: none"> Possibly watch a movie today (if we can arrange a space) - Pirates of Silicon Valley. If not, Rob will give you a fun presentation today. You earned it. Farewell ceremonies
WEEK 15	Final Exam Period	
	<p>PERSONAL PAPER due during our final exam session</p> <p>RESEARCH PAPER Presentation due at our final exam session</p>	