STSC-260: Cyberculture

Spring 2017. Tuesday 1:30-4:30pm, Cohen 392

Instructor: Professor Etienne Benson, Department of History and Sociology of Science
Email: ebenson@sas.upenn.edu. Office hours: Monday 1-3pm, Cohen 365

Course Description

This course focuses on how digital technologies and contemporary culture have become deeply intertwined since the invention of the digital computer in the mid-20th century. It addresses questions such as the following: What are the origins of computing and cybernetics? Does information technology make us less or more free (or neither)? Does it enhance or undermine social relationships? Does the development of "thinking machines" change what it means to be human? We'll take a close look at the origins of computing and cybernetics in the context of World War II and the early Cold War, and then trace how these technologies and ideas have worked their way into and been transformed by hacker communities, the counterculture, the free software movement, consumer culture, and everyday life. This is a discussion-intensive course in which our main activity will be clarifying and debating ideas presented in each week's readings. For that reason, keeping up with the reading, attending class, and participating in the discussion are essential. Over the course of the semester, you will also develop an independent research project on a topic of your choice. Your research topic may be either historical or contemporary in focus, but in either case it will draw insights and analogies from the rich history of cybernetics and computing as it has developed over the past half-century.

Readings

The following required books can be purchased in affordable paperback editions at the Penn Book Center (130 South 34th St.). They are also on reserve at Van Pelt Library.

- William Gibson, *Neuromancer*
- Eden Medina, *Cybernetic Revolutionaries* [also available as an ebook]
- Fred Turner, *From Counterculture to Cyberculture*

All other readings will be available as PDFs via Canvas, online, or as an ebook accessible through the Penn Library's Franklin catalog.

Assignments and Grading

In-class participation	10%
Weekly discussion questions	10%
Discussion introductions (10% each)	20%

Option #1: Three short papers		Option #2: Research paper	
Paper #1	%20	Proposal	10%
Paper #2	%20	Bibliography	10%
Paper #2	%20	Final paper	40%

An important note on late submissions: Except in cases of medical or other emergency, grades for assignments turned in after the due date will be reduced by 5 percentage points (i.e., half a letter grade) *per day*, which can add up quickly. Please contact me as soon as possible if you suspect that you will not be able to meet a deadline.

Assignments

Weekly discussion questions: Each week, you should post a discussion question in response to the week's readings to the appropriate discussion thread on Canvas. These should be *brief* (100 words or less), but also specific and directly related to the readings.

Discussion introductions: Each week, two students will introduce the week's readings. Rather than summaries of the readings, your introductions should identify key themes, problems, and questions—i.e., they should assume that everyone has done the reading and provide some starting-points for discussion. The two students presenting each week should communicate with each other in advance of the presentation to identify the topics, themes, and questions they would like to discuss, as well as the division of labor for the presentation. Both student presenters should plan to speak for about equal amounts of time. The total presentation time should not exceed 20 minutes.

Written assignments: You have two options for written assignments: either to write three short papers over the course of the semester (Option #1), or to write one long research paper (Option #2). Option #1 is likely to be the more manageable option for most students and is recommended if you have any doubts about your ability to research and write a longer paper or are unsure of what you would write about. Option #2 is recommended if you have experience writing longer research papers or if you are strongly motivated to explore a particular topic/question at length. Due dates for the three papers and for the required proposal and bibliography for the research paper are given in the schedule below. You must decide which option you will take by Feb. 14, when the first paper/project proposal is due.

Option #1: Three short papers

These short papers should address the prompts given below. Each should be about 1800-2100 words long including citations and bibliography. (This should amount to about 6-7 pages double-spaced.) Each paper should have a clear thesis stated in the first paragraph that is defended with reference to the course readings. Each paper must reference and discuss in a substantive way at least 3 readings, and while you are free to return to earlier readings over successive papers, each paper should also address a new and different set of readings than the previous ones.

- Paper #1: The origins of the "cyber": Why did computing and cybernetics emerge where and when they did?
- Paper #2: The politics of code: In what ways is coding political, and what are its advantages and disadvantages as a mode of political action?
- Paper #3: Humanity in the age of thinking machines: In what ways has the increasing integration of information technology into everyday life since the mid-20th century changed what it means to be human?

Option #2: Research paper

- Project proposal: A 500-600-word (about 2 pages double-spaced) proposal for your final project. The proposal should identify your topic, the kinds of sources you plan to draw on, and a possible thesis or argument. The details of this proposal, which is to be submitted early in the semester, are not binding, but the more detailed and considered it is, the easier your research over the rest of the semester will be. The proposal will serve as the basis for a one-on-one discussion with the instructor about how best to pursue the project.
- Project bibliography: This annotated bibliography of primary and secondary sources relevant to your project should list minimum of 5 sources from the syllabus and a minimum of 10 additional sources—books, articles, films, websites—from beyond the syllabus. Each source must be annotated by 2-3 sentences explaining why it is relevant to your project and how you plan to use it. Citations should be formatted according to the Chicago Manual of Style's bibliography style. Include an updated project summary of about 150-200 words.
- Final project/paper: Length: 4,000-5,000-words, including citations and bibliography. (This should amount to about 16-18 pages double-spaced.) Your final paper will be graded on the following criteria: Does it have a clear thesis that is stated at the beginning of the paper and supported effectively until the conclusion? Is it well structured and organized both on the level of the paper and on the level of the individual paragraph? Does it draw effectively on relevant primary and secondary sources, both from the syllabus and beyond it? Does it engage extensively and creatively with themes covered in the course? Is it well written and free of grammatical errors, typos, and formatting mistakes?

A Note on Research Project Topics (Option #2)

If you select Option #2, you are free to propose a final paper on any topic that interests you, as long as it addresses themes relating to computing and culture and allows you to draw on discussions and readings from the course. You may use the paper as an opportunity to dig deeper into topics highlighted in the syllabus or to explore other issues of interest to you. Your focus may be historical or contemporary, but your paper should engage with the historical background of whatever topic you choose.

A very partial list of possible topics might include: the role of Big Data in science and society; the economic impact of robotics and artificial intelligence; hacking as a security threat and/or a means of political protest; online dating and match-making services; the health benefits and risks of fitness monitors and other wearable devices; literary and cinematic representations of hackers, computing, etc.; copyright, piracy, and innovation; privacy and surveillance; models and simulations; e-sports; e-commerce; online rumors, clickbait, and “fake news”; cybersecurity and cyberwarfare; drones; etc.

Academic Integrity

As always, you are expected to abide by the University of Pennsylvania's Code of Academic Integrity. For the purposes of this course, this mainly means (1) treating the instructor and your classmates with respect and (2) doing your own work and properly citing the sources you use. In your written work, any extended phrases or sentences taken directly from another source must be placed within quotation marks and properly cited; failure to do so may be considered plagiarism.

Religious Obligations and Special Accomodations

If you anticipate a conflict between religious obligations and any requirements of the course, including class attendance, please inform me within two weeks of the beginning of the semester so that alternate arrangements can be made. Similarly, if you require any special accommodations to participate fully in the class, please inform me as soon as possible, either in person or by email. All possible efforts will be made to ensure that your needs are met.

Use of Laptops and Other Devices in Class

In order to encourage robust discussion and discourage the kind of distraction that very few of us are immune to, the use of laptops and other electronic devices, including tablet computers and smartphones, is prohibited in this class. Please bring your notes and readings to class in paper form. A few communal hardcopies of readings will be also provided for each session.

Schedule of Readings and Assignments

Week 1 (Jan. 17) — Introduction

Vannevar Bush, “As We May Think” (1945) [online]

Week 2 (Jan. 24) — The wartime origins of cybernetics

Norbert Wiener, “Introduction” to *Cybernetics, Or Control and Communication in the Animal and the Machine* (1948), pp. 20-48

Peter Galison, “The Ontology of the Enemy: Norbert Wiener and the Cybernetic Vision” (1994)

Paul Edwards, “Why Build Computers? The Military Role in Computer Research,” Ch. 2 of *The Closed World* (1997), pp. 43-73

Week 3 (Jan. 31) — Cyberculture meets counterculture

Stewart Brand, “SPACEWAR: Fanatic Life and Symbolic Death Among the Computer Bums,” *Rolling Stone*, Dec. 7, 1972 [online]

Fred Turner, *From Counterculture to Cyberculture* (2006), Intro and Chs. 1-3, pp. 1-102

Week 4 (Feb. 7) — Cybernetics as politics

Eden Medina, *Cybernetic Revolutionaries: Technology and Politics in Allende’s Chile* (2011), Prologue, Intro, Ch. 1-4, Ch. 6, Conclusion, pp. 1-139, pp. 171-221

Week 5 (Feb. 14) — War games

Paul Edwards, Ch 1., Chs. 9-10 of *The Closed World* (1997), pp. 1-41, 275-352 [ebook]

Stephanie Ricker Schulte, “'The WarGames Scenario': Regulating Teenagers and Teenaged Technology (1980-1984)” (2008)

In-class film viewing: *WarGames* (1983)

——— *Paper #1 or Project Proposal due in class on Feb. 14* ———

Week 6 (Feb. 21) — ** No class — one-to-one meetings **

Week 7 (Feb. 28) — Cyberpunks and cyberfeminists

William Gibson, *Neuromancer* (1984)

Donna Haraway, “A Manifesto for Cyborgs” (1985)

Week 8 (Mar. 7) — ** No class — spring break **

Week 9 (Mar. 14) — Free software and recursive publics

Richard Stallman, “GNU Manifesto” (1985-1987) [online]

Eric Raymond, “The Cathedral and the Bazaar” (1999) [online]

Chris Kelty, “Geeks, Social Imaginaries, and Recursive Publics” (2005)

Gabrielle Coleman, Chs. 1-2 in *Coding Freedom* (2013), pp. 25-89

Week 9 (Mar. 21) — Art and code

Casey Reas and Ben Fry, *Processing: A Programming Handbook for Visual Designers and Artists*, Chs. 1-3 (“Processing…,” “Using Processing,” and “Draw”), pp. 1-38, and “Interviews: Image,” pp. 127-141

In-class exercises with Processing — bring your laptop

Week 10 (Mar. 28) — Networking for fun and profit

Kevin Kelly, “New Rules for the New Economy” (1997) [online]

Janet Abbate, “Government, Business, and the Making of the Internet” (2001)

Fred Turner, *From Counterculture to Cyberculture*, Chs. 6-8, pp. 175-262

——— *Paper #2 or Annotated Bibliography due in class on March 28* ———

Week 11 (Apr. 4) — Second selves and virtual communities

Sherry Turkle, *The Second Self: Computers and the Human Spirit* (1984), Ch. 4, Ch. 9, pp. 137-162, pp. 306-313

Sherry Turkle, *Life on the Screen: Identity in the Age of the Internet* (1995), Ch. 7, pp. 177-209

Sherry Turkle, *Alone Together: Why We Expect More From Technology and Less From Each Other* (2011), Chs. 8-9, pp. 151-186

Week 12 (Apr. 11) — Security, liberty, and surveillance

Michel Foucault, *Discipline and Punish* (1977), Ch. 3, pp. 195-228

David Lyon, “Surveillance, Snowden, and Big Data” (2014)

In-class film viewing: *Citizenfour* (2014, directed by Laura Poitras)

Week 13 (Apr. 18) — Piracy, property, and the commons

Lawrence Lessig, *Free Culture* (2004), pp. 1-79 [online]

In-class film viewing: *The Internet's Own Boy* (2014, directed by Brian Knappenberger)

Week 14 (Apr. 25) — Computing and the environment

Nathan Ensmenger, “Computation, Materiality, and the Global Environment” (2013)

Jennifer Gabrys, *Digital Rubbish: A Natural History of Electronics* (2011), Ch. 1, Ch. 5, and Conclusion [available as ebook]

Nicole Starosielski, “‘Warning: Do Not Dig’: Negotiating the Visibility of Critical Infrastructures” (2012)

——— *Paper #3 or Research Paper due by midnight on Friday, May 5* ———