

Science in a Global Context

LB 323A Hidden Histories of Computing

Syllabus version: 2017 September 13 – subject to change

Fall 2017

Tu,Th 10:20 AM – 12:10 PM

26A East Holmes Hall

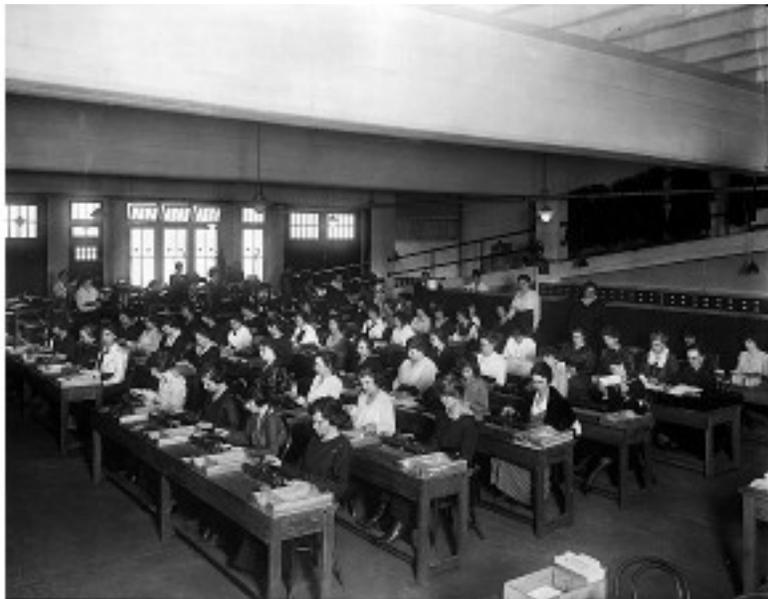
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Offices: 32 West Holmes Hall and 315 South Case Hall

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Women workers in a computation “factory” 1930s

Image: Computer History Museum, computerhistory.org

Course Description

This course is all about **HIDDEN HISTORIES OF COMPUTING**. Together, we will learn (and teach each other) about computer dating and the “beards and sandals” stereotype of Silicon Valley nerds. But we’ll also venture back to the 19th century to discover another side of Florence Nightingale, to meet some computers (who were people), and to consider the college lives and times of mathematical Wranglers. We will cross the Atlantic to visit Bletchley Park, a key site of British WWII computing, and consider Alan Turing as well as the “Bletchley Girls.” We’ll journey along *The Oregon Trail* (a video game) and try to figure out *Where in the World Is Carmen Sandiego?* (another video game). Together we’ll view (and review) *Hidden Figures*, *The Imitation Game*, and *The Bletchley Circle*.

You'll learn about computing in England, France, Denmark, and the Soviet Union, as well as in Korea, India, and China. You'll encounter girls and boys, women and men. My goal is that you find this class both eye-opening and enjoyable.

The great myth of contemporary American digital culture is that we had Founding Fathers. Some of them – Steve Jobs, Mark Zuckerberg, Sergey Brin – are now more familiar to us than others – Steve Wozniak, Paul Allen, Ed Roberts. According to this origin story, there were no computers for ordinary people – no personal computing – until these founding fathers and their hardware and software made computing accessible to everyone. As computing became widespread during the 1980s and 1990s, especially with the growth of the Internet, both academic histories and popular accounts focused on the boys of Silicon Valley. These narratives, by focusing on the few, obliterated the history of the many: the many people across the country and around the world who had been computing in different ways for over a century. The meteoric growth and monopoly status of Microsoft during the 1990s, combined with Apple's late-90s comeback and "iDominance", as well as the explosion of social media, all further focused attention on Jobs, Zuckerberg, and their fellow "Founders."

But this mythology does us a disservice. It creates a digital America dependent upon the work of a handful of male tech geniuses. It deletes the work of the many individuals who had been computing for decades, and it effaces their diversity. The "Founding Fathers" computing story is neat and pat but it prevents us from asking how American – and global – digital culture truly evolved. In short, this mythology misses the story at the heart of the transformation of American culture during the past fifty years.

COURSE OBJECTIVES

Students will achieve the following learning gains:

Critical Reading and Thinking

- Demonstrate the ability to actively and critically read academic writing (articles, chapters, reviews) for content, argument, and evidence
- Demonstrate the ability to identify the thesis statement and supporting evidence in an academic essay
- Demonstrate the ability to identify quotations from an academic essay that are critical to understanding the author's thesis and supporting evidence
- Demonstrate the ability to employ quotations from academic writing as the building blocks to articulate critical themes in academic writing, and to connect themes from multiple sources

Communication (Written and Verbal)

- Develop their ability to communicate verbally in small and large groups
- Develop their ability to present new material to their peers to fulfill student-identified learning objectives
- Develop their ability to write an academic essay with introduction and conclusion, thesis statement (argument) presented in introduction, cogent topic sentences introducing body paragraphs that support and provide evidence for the thesis statement, and a conclusion that connects the thesis to wider implications.
- Develop their ability to synthesize sources by identifying common themes, conversational threads, or putting sources in dialogue with one another

History of Science and Technology / History of Computing

Gain knowledge about fundamental concepts and topics in HPS including:

- Identifying and analyzing continuities and changes over time in the practices and technologies of computing (broadly defined)
- Identifying and analyzing the practices that govern computing labor within particular communities or institutions, such as who is included (and excluded), what rules govern participation, what moral economies govern participation, where computing is produced, and how race, class, and/or gender factor into those computing communities
- Identifying and analyzing the multifaceted historical foundations for today's global digital cultures

ACADEMIC INTEGRITY

I value academic integrity and honesty. Any form of cheating or plagiarism in this course will be reported to the Dean and become part of your academic record. Complete your own work. Value your ideas, and honor and respect the ideas of others. Use appropriate citation of all sources in your written work (see the last pages of the syllabus for citation information).

I expect each of you to adhere to the Spartan Code of Honor (written by your peers, for MSU students): "As a Spartan, I will strive to uphold values of the highest ethical standard. I will practice honesty in my work, foster honesty in my peers, and take pride in knowing that honor is worth more than grades. I will carry these values beyond my time as a student at Michigan State University, continuing the endeavor to build personal integrity in all that I do."

SUCCESS IN THIS COURSE / OVERVIEW

- 25% Your **individual participation**, including a short writing exercise (based on assigned readings) for every class
- 15% The active **participation** of every member of the **group** to which you are assigned
- 20% An in-class **student teaching exercise** (a presentation to the class)
- 40% **Two essays** (one near mid-semester, one at end-of-semester, each 20%), one of which may be a review of a film, TV show, or video game

Your final grade will follow the standard MSU breakdown of 4.0, 3.5, 3.0, etc. At the end of the semester, I will round your grade according to the following scale:

Average →	Final Grade
3.75-4.0 =	4.0
3.25-3.74 =	3.5
2.75-3.24 =	3.0
2.25-2.74 =	2.5
1.75-2.24 =	2.0
1.5-1.74 =	1.5
1.0-1.49 =	1.0
0 – 0.99 =	0

Note: The MSU Student Handbook suggests that you spend 2 hours per week outside of class for every credit your class is worth. This class is worth 4 credits. I expect that you will spend at least 8 hours per week on the assignments (including active reading and note-taking) for this course.

SUCCESS IN THIS COURSE / INDIVIDUAL CLASS PARTICIPATION / 25%

To succeed in this course, your attendance, active reading in advance, and active participation and engagement are required at every class. You may miss two classes during the semester without penalty. At three or more absences, one full point will be deducted from your course-long individual participation grade for each absence. If you know in advance that you will miss a class (for example, in the case of religious observance), contact me as early as possible to make arrangements. If you miss a class for a reason that may be excused but cannot be anticipated, such as illness or grief, contact me as soon as possible after the class has been missed to make arrangements. Note that you must receive written confirmation from Prof. Joy for any absence you want to be excused or make up.

Participation is making meaningful, thoughtful contributions to small group and large class discussions and activities. Your comments must be original and must demonstrate a critical and thoughtful examination of the assigned readings. Do not simply repeat a peer's comment or offer an unrelated observation. Similarly, do not simply sit silently throughout class – being physically present does not count as active participation.

The **readings** for this course are all posted on the course's D2L website, or they are available online through the MSU library (where noted) or other websites. I expect that you will actively and critically read the works assigned. This means taking notes, recording your responses, questions, and analyses, and – in general – interacting with the assigned reading. Do the readings and assignments listed on the syllabus for the day they are listed—in other words, **do the readings listed before coming to class that day.**

To facilitate your active participation, you will be required to do a **short writing exercise** for every class for which there is assigned reading, due at the start of class, in typed and printed format, with your name and a citation for the assigned reading at the top. You will select two quotes from the assigned reading, and cite those quotes, with page numbers. You will provide a short (roughly one paragraph) reflection about each quotation: How does this quote illustrate the author's argument(s)? How did the quotation demonstrate an effective use of evidence in the reading? What themes in the reading did the quote illustrate? How does this quotation demonstrate "hidden histories of computing"? Why was it interesting to you? Was it confusing? Did it remind you of another reading (and if so, what other reading and why)? Does it connect with your personal experience? Your other coursework? This writing exercise is intended to help you interact with and reflect on the assigned reading before coming to class, and it will be the foundation for many group activities in class.

SUCCESS IN THIS COURSE / GROUP PARTICIPATION / 15%

In this class you will be assigned to **learning teams** of 4-6 peers. The composition of the groups will be determined using software called CATME Team-Maker (<http://info.catme.org>). The teams will work together in various ways over the course of the semester on the assigned readings. Note: any problems with your group must be reported to Professor Joy right away.

Group participation will be evaluated by your peers anonymously. Students will provide feedback on how each group member is contributing and participating: Is the student coming to class having done the reading? With notes and/or questions about the reading? Is the student listening when their group members are talking? Taking notes when group members are talking? Is the student

asking thoughtful and productive questions? Is the student a helpful facilitator? Is the student an effective group representative? How could the student improve their group participation?

Note: Prof. Joy will assign the daily group representative for each learning team, using a rotating schedule.

SUCCESS IN THIS COURSE / IN-CLASS STUDENT TEACHING EXERCISE / 20%

Individually or in small groups (you will have a choice), students will plan and facilitate a portion of in-class learning, to last approximately 30 minutes. You will select a topic (with associated reading) from a list prepared by Prof. Joy, and you will be able to provide preferences as to whether the topic/reading, the teaching date, or working individually/in a group is most important to you. Based on those preferences, you will be assigned a date/topic to teach to the class. Your planned teaching/learning activity must tie in with your reading and must deepen your peers' understanding of that reading. Early in the semester, I will provide more detailed instructions for this assignment, and we will establish a schedule of presentations. The instructions and schedule will be posted on the course D2L site.

SUCCESS IN THIS COURSE / ESSAYS / 40% (2 ESSAYS, EACH WORTH 20%)

Each essay will be approximately 1500-2000 words. They will draw on assigned readings, class activities, peer presentations, and media we discuss in class during the semester. I want to see you engage the materials in a thoughtful and analytical manner to produce an essay that demonstrates to me that you have analyzed and synthesized the content, arguments, and evidence involved in the course. You may have the option to review a television show, film, or video game that we address in class, or – with Prof. Joy's permission in advance – other media that is relevant to the course. The end-of-semester essay will be an opportunity for you to reflect on what you learned during the semester.

SUCCESS IN THIS COURSE / ETIQUETTE

- Put away your phones, tablets, laptops, whatever other digital devices. Our class time together is a space to focus our attention on our learning and our peers. Research shows that screen usage in class not only distracts the user but the people around the user. I view this as a matter of consideration, respect, and above all – inclusivity – for everyone in the room. Prof. Joy will announce exceptions to this policy (for example, using a device to consult assigned reading during group work).
- Tell me if you are struggling to read the material critically, understand class content and concepts, or write a well-argued paper. You can talk to me after class, during office hours, by appointment, or by email.
- If you email, you must say to whom you are writing (Prof. Joy) and identify who you are. You *MUST* use your MSU email account. This is to maintain your privacy (anyone can claim to be you if emailing from a Google or Hotmail account) and to maintain good manners when emailing your professor.
- As always at Lyman Briggs, respect, inclusion, and integrity are central to how we treat one another and approach our work.

SCHEDULE FOR READINGS AND ASSIGNMENTS

(updated 2017 September 13 – subject to change)

Thursday August 31

Welcome! Course overview, and what do we have in common?

Tuesday September 5

In-depth explanation of assignments and grading, and individual introductions

Thursday September 7

In-depth explanation of schedule and readings, creating course norms for respectful and inclusive participation, and suggesting guidelines for respectful, inclusive, and productive group collaboration and evaluation

Tuesday September 12

Marie Hicks, “Computer Love: Replicating Social Order Through Early Computer Dating Systems,” *Ada: A Journal of Gender, New Media, & Technology* (Fall 2016, issue 10), <http://adanewmedia.org/2016/10/issue10-hicks/>.

Thursday September 14

Nathan Ensmenger, “Beards, Sandals, and Other Signs of Rugged Individualism?: Masculine Culture within the Computing Professions,” *Osiris*, Vol. 30, No. 1, *Scientific Masculinities* (2015), pp. 38-65, <http://homes.soic.indiana.edu/nensmeng/files/Ensmenger2015.pdf>.

Tuesday September 19

Stephanie Schulte, *Cached: Decoding the Internet in Global Popular Culture* (New York: New York University Press, 2013), selections on D2L.

Thursday September 21

Meryl Alper, “Can Our Kids Hack It With Computers?: Constructing Youth Hackers in Family Computing Magazines (1983-1987),” *International Journal of Communication* 8 (2014), 673-698, <http://ijoc.org/index.php/ijoc/article/view/2402/1092>.

Tuesday September 26

danah boyd, *It's Complicated: The Social Lives of Networked Teens*, paperback ed. (New Haven: Yale University Press, 2015), selections on D2L.

Thursday September 28

Elizabeth Petrick, *Making Computers Accessible: Disability Rights and Digital Technology* (Baltimore: Johns Hopkins University Press, 2015), Introduction and Chapter 2 on D2L.

Tuesday October 3

Margot Lee Shetterly, *Hidden Figures: The American Dream and the Untold Story of the Black Women Mathematicians Who Helped Win the Space Race* (New York: HarperCollins, 2016), selections on D2L.

Thursday October 5

Margot Lee Shetterly, *Hidden Figures: The American Dream and the Untold Story of the Black Women Mathematicians Who Helped Win the Space Race* (New York: HarperCollins, 2016), selections on D2L.
and

In class: Screening *Hidden Figures*

Tuesday October 10

Joy Rankin, "From the Mainframes to the Masses: A Participatory Computing Movement in Minnesota Education," *Histories of the Internet* special issue of *Information and Culture: A Journal of History* 50.2 (2015), pp. 197-216,

<https://static1.squarespace.com/static/52339c9ae4b06413e7492a5d/t/56f2e53037013be240032ecc/1458758961179/50.2.rankin.pdf>.

Thursday October 12

First Essay due, no assigned reading.

In class: Exploring *The Oregon Trail*

Tuesday October 17

Sydney Padua, *The Thrilling Adventures of Lovelace and Babbage: *The (Mostly) True Story of the First Computer* (Great Britain: Particular Books, 2015), selections on D2L.

[Middle of semester = Wednesday October 18]

Thursday October 19

Sydney Padua, *The Thrilling Adventures of Lovelace and Babbage: *The (Mostly) True Story of the First Computer* (Great Britain: Particular Books, 2015), selections on D2L.

and

Joy Rankin, "My Thrilling Adventures Reading about Ada and Charles," *Lady Science* No. 23 (August 19, 2016), <https://www.ladyscience.com/my-thrilling-adventures/6fp28w46t55j9czglw2kr5y7hf8rkr>.

Tuesday October 24

Eileen Magnello, "Florence Nightingale: The Compassionate Statistician," *Plus Magazine: Living Mathematics*, December 8, 2010, <https://plus.maths.org/content/florence-nightingale-compassionate-statistician>.

and

Joy Rankin, "Florence Nightingale: Of Myths and Maths," *The New Inquiry* and *Lady Science* No. 29 (February 17, 2017).

Thursday October 26

No class – Prof. Joy at Society for the History of Technology Conference

Co-Organizer for Special Interest Group for Computing, Information & Society

Tuesday October 31

Tessa Dunlop, *The Bletchley Girls: War, Secrecy, Love, and Loss – The Women of Bletchley Park Tell Their Story* (Great Britain: Hodder & Stoughton, 2015), selections on D2L.

Thursday November 2

Tessa Dunlop, *The Bletchley Girls: War, Secrecy, Love, and Loss – The Women of Bletchley Park Tell Their Story* (Great Britain: Hodder & Stoughton, 2015), selections on D2L.

and

Joy Rankin, "[Why I love The Bletchley Circle and you should, too](#)" *Lady Science No. 10* (July 17, 2015).

In class: Screening *The Bletchley Circle*

Tuesday November 7

Marie Hicks, *Programmed Inequality: How Britain Discarded Women Technologists and Lost its Edge in Computing* (Cambridge: MIT Press, 2017), selections on D2L.

Thursday November 9

Marie Hicks, *Programmed Inequality: How Britain Discarded Women Technologists and Lost its Edge in Computing* (Cambridge: MIT Press, 2017), selections on D2L.

Tuesday November 14

Jacob Gaboury, "A Queer History of Computing," Parts 1-5, *Rhizome* (2013),

<http://rhizome.org/editorial/2013/feb/19/queer-computing-1/> ***This is a link to Part 1 – make sure to read Parts 1-5.

Thursday November 16

L.V. Anderson, "How accurate is *The Imitation Game*?" *Slate* (December 3, 2014),

http://www.slate.com/blogs/browbeat/2014/12/03/the_imitation_game_fact_vs_fiction_how_true_the_new_movie_is_to_alan_turing.html

In class: Screening *The Imitation Game*

Tuesday November 21

Alison Gazzard, *Now the Chips Are Down: The BBC Micro* (Cambridge, MIT Press, 2016), selections on D2L.

In class: Screening *BBC Micro Live (1983) Part 1*

Thursday November 23

No class – Happy Thanksgiving!

Tuesday November 28

Nani Jansen Reventlow, Jonathon Penney, Amy Johnson, Rey Junco, Casey Tilton, Kate Coyer, Nighat Dad, Adnan Chaudhri, Grace Mutung'u, Susan Benesch, Andres Lombana-Bermudez, Helmi Noman, Kendra Albert, Anke Sterzing, Felix Oberholzer-Gee, Holger Melas, Lumi Zuleta, Simin Kargar, J. Nathan Matias, Nikki Bourassa, and Urs Gasser, *Perspectives on Harmful Speech Online* (Cambridge, MA: Berkman Klein Center for Internet & Society Research Publication, 2016), <https://dash.harvard.edu/handle/1/33746096>, selections TBA.

Thursday November 30

Adrian Chen, "The Internet's Invisible Sin-Eaters," *The Awl* October 2014 Interview:

<http://www.theawl.com/2014/10/the-internets-invisible-sin-eaters>

Moshe Z. Marvit, "How Crowdworkers Became the Ghosts in the Digital Machine," *The Nation* 2014 February 5: www.thenation.com/article/how-crowdworkers-became-ghosts-digital-machine

Jodie Kantor and David Streitfeld, “Inside Amazon: Wrestling Big Ideas in a Bruising Workplace,” *New York Times* 2015 August 15, http://mobile.nytimes.com/2015/08/16/technology/inside-amazon-wrestling-big-ideas-in-a-bruising-workplace.html?_r=0&referrer

Mac McClelland, “I Was a Warehouse Wage Slave,” *Mother Jones* March/April 2012: <http://www.motherjones.com/politics/2012/02/mac-mcclelland-free-online-shipping-warehouses-labor>

Jamie Lauren Keiles, “How Jukin Media Built a Viral-Video Empire,” *New York Times Magazine* 2016 December 27: <http://www.nytimes.com/2016/12/27/magazine/how-jukin-media-built-a-viral-video-empire.html>.

Tuesday December 5

Selections on *Where in the World Is Carmen Sandiego?*

In class: Exploring *Where in the World Is Carmen Sandiego?* and/or screening PBS episodes.

Thursday December 7

Last Day of Class! No assigned reading, semester wrap-up.

Thursday December 14

Culminating Essay due to Prof. Joy by email (profjoy@msu.edu) by 10:00AM today.