SOCIOLOGY OF TECHNOLOGY

Instructor: Santiago J. Molina, santiagojmolina@northwestern.edu

Seminar: Tuesday and Thursday 11:00-12:20pm in Kresge Centennial Hall 2-425

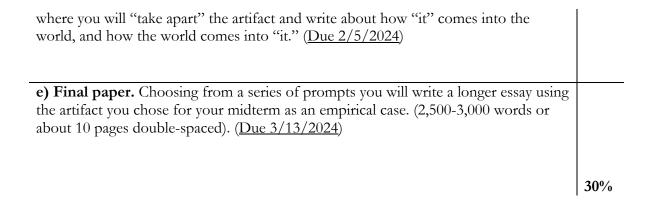Office Hours: https://calendly.com/santiagojmolina

I. SUMMARY AND GOALS

Technology is ubiquitous. This course covers central tenets in the sociology of technology by pairing empirical research on different technologies with different theoretical paradigms. From bicycles, cars, computers, facial recognition, genetic sequencing, soap, shipping containers to virtual reality. Each of these technologies is approached as a window into the social, political, racial, and economic determinants of technological innovation. Students will draw from their own experiences to understand the social construction of technology, actor-network theory, sociotechnical systems, sociotechnical and scientific imaginaries, feminist theories of technology and the New Jim Code. The central goal of the course is to equip students with the tools for unpacking the technologies societies take for granted and critically engaging with new technologies that may reproduce social inequities. In addition to understanding various sociological theories of technology, students will learn valuable research skills for assessing claims about technology, engineering, and science and their relation to culture, politics, and society.

While much of the scholarship we will consider is broadly sociological, some of it is drawn from other fields, and part of the goal of the course is to show what is gained when we think about technology from an interdisciplinary perspective. Students from other disciplines are welcome.

II. ASSIGNMENTS AND GRADING

a) Participation. You are expected to come to class having done the readings and watched the films. Be prepared to actively discuss, compare, and critique the readings with your peers. Both active *listening* and *contributing* are required for participation. Meeting with the instructor for one-on-one office hours during the first three weeks of instruction is required for full participation.	**20%**
b) 3 response memos. (300-500 words) Here you should aim to: summarize the argument in one of the readings; reflect on the readings in relation to your own experience, ask clarifying questions and connect the readings (from any week) to each other. Along with the Reading Guide, these are meant to help you keep on track with the readings and reinforce course concepts. Deadlines for each memo are set throughout the semester on <u>Sunday 1/21, Sunday 2/11, and Sunday 2/25</u>. Response memos must be submitted to Canvas.	**30%**
c) Midterm paper. (4-5 pages double spaced) Halfway through the course, you will identify a specific artifact/technology you think is interesting. It could anything! But it has to be something specific and in your surroundings. Air pods, copper wire, carboard, you name it. The paper will consist of what is called an "implosion paper"	**20%**

where you will "take apart" the artifact and write about how "it" comes into the world, and how the world comes into "it." (<u>Due 2/5/2024</u>)

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e) Final paper. Choosing from a series of prompts you will write a longer essay using the artifact you chose for your midterm as an empirical case. (2,500-3,000 words or about 10 pages double-spaced). (<u>Due 3/13/2024</u>)

30%

III. COURSE MECHANICS

Academic Integrity. Much of your learning in this class will come from the contributions and ideas of your classmates through discussion; in this respect, collaboration is encouraged. However, remember to give credit where credit is due, and know that in your papers and tests it is *your own* ideas we need to hear about. Note that plagiarism is not limited to stealing an entire paper. Using quotes without properly citing them or using ideas without acknowledging their source also constitute plagiarism. Any form of cheating and plagiarism will lead to zero on the assignment and to disciplinary action.

Natural Language Models and Generative AI. The Sociology Department is committed to ensuring that students abide by Northwestern University policies on <u>Academic Integrity</u> while also embracing new technologies when appropriate to help students learn and achieve. ***For sociology classes, using generative artificial intelligence (AI) tools (e.g., ChatGPT or similar programs) for preliminary work or submitted assignments is prohibited unless explicitly stated in the guidelines for a specific assignment.*** (If AI is used in keeping with an assignment's guidelines, how AI was used should be clearly acknowledged). Any form of cheating, including improper use of content generated by artificial intelligence, constitutes a violation of Northwestern's academic integrity policy. Turnitin, which is already in use at Northwestern, is expanding its system to include artificial intelligence detection. Northwestern's policy on academic integrity includes these two statements regarding the use of generative AI:

1. **Cheating:** Allowing another person or resource (including, but not limited to, generative artificial intelligence) to do one's work and submitting that work under one's own name without proper attribution

2. **Plagiarism:** Plagiarism includes, but is not limited to, the unauthorized use of generative artificial intelligence to create content that is submitted as one's own.

Cell Phone Policy. Cell phones should be turned off or in airplane mode. No checking messages or receiving calls during section, except in cases of extreme personal urgency. Please let me know at the beginning of section if you think this situation might apply to you.

Structure and Plan. This syllabus, schedule, and modalities of instruction (in-person, via Zoom, etc.) are subject to change in the event of unforeseen circumstances. Announcements of changes

will be posted on Canvas and emailed to students. Students will be responsible for abiding by the changes.

Content Warning. The readings and discussion in this course deal with deep personal and historical social issues that may contain material that is startling, upsetting, and/or difficult to process. This includes medical violence, oppression, settler-colonialism, stereotypes, systemic racism, and white supremacy. Engaging with this content openly and directly requires honest, transparent, and just community agreements below. Please contact me or come to office hours to talk about specific issues that might arise.

Community Agreements the Course.

1. Be respectful of others.
2. Do not interrupt another student while they are speaking. (Persistent interrupting can lead to percent loss in your participation grade)
3. We may be discussing controversial social issues in this class. In debate, listen to the other person's argument, and respond to their points. Try to understand where the other person is coming from, even if you fundamentally disagree with their position.
4. Do not make personal attacks or make fun of anyone's argument.
5. Do not dominate discussion; let others speak.
6. Our goal is to include everyone in discussion. So, if you reference an outside author, please take time to explain to the other students what the author's argument is, and how it's relevant to the current readings and discussion. If you do bring outside material you should know it well enough to explain it to us. This way, we can *teach* each other, rather than exclude each other. To make discussions as participatory as possible (and welcoming to students coming from multiple disciplines), I discourage "namedropping" and "-ism-dropping."
7. These same rules apply to me, and I intend to work by them. If I do interrupt someone or break these rules, call me out on it. Please. I hope to learn from our conversations just as much as you do.
8. Any other suggestions and feedback about how the seminar is run, in-seminar activities, preferences and questions are welcomed.

Disabled Students Program and Special Accommodations. Any student requesting accommodations related to a disability or other condition is required to register with AccessibleNU (accessiblenu@northwestern.edu; 847-467-5530) and provide professors with an accommodation notification from AccessibleNU, preferably within the first two weeks of class. All information will remain confidential.

Email Policy. If you email me during the week, I will do my best to get back to you within 24 hours, except on weekends or administrative holidays.

Late Assignments Policy. Except under unusual circumstances, late assignments will be marked down. Late final papers may not even be accepted at all, if they arrive too late for me to grade them. If you know *ahead of time* that there is going to be a problem with the assignment dates, you should let me know ahead of time, but *no* retroactive excuses will be accepted. Please compare deadlines for assignments from this course with those of your other classes to anticipate significant conflict, for example if you have an exam the same day your midterm is due. I will arrange to accept late assignments in cases of medical or personal emergency. If you have a separate scheduling conflict

with assignments from another class, important events, etc. you should request an extension as soon as possible [at least 7 days prior to assignment due date].

Social Media and Copyright. This syllabus and all PowerPoint presentations for this course are copyright 2024 by Santiago Molina. Please do not post any materials related to the course on the internet without the permission of the instructor. This includes sites such as "Course Hero." Students are also prohibited from selling (or being paid for taking) notes during this course to or by any person or commercial firm without the express written permission of Santiago Molina. No audio or video recordings of class are permitted without the instructor's permission/consent.

Health, Wellbeing and Mental Health. This is just a class. Please prioritize your wellbeing. This means, at a very baseline, sleeping and eating are more important than keeping up with the class.

Students can find useful resources for safety and security, academic support, and mental and physical health and wellbeing at the NUhelp website (https://www.northwestern.edu/nuhelp/) and on the NUhelp app (https://www.northwestern.edu/nuhelp/get-help/nuhelp-app-features.html). Please make use and explore the wealth of support available to you through https://www.northwestern.edu/wellness/.

The course will abide by Northwestern's current public health and safety guidelines as they change. If you show any COVID-19 symptoms please stay home, get tested, and be mindful of your community. Please email me and I will do my best to accommodate by providing slides and lecture notes. Masks are not required, but encouraged during class.

IV. SCHEDULE OF READINGS AND ASSIGNMENTS

Thursday 1/4. Introduction to the class: What is technology?
　　　Read course syllabus.

Tuesday 1/9. The Question(s) Concerning Technology in the 21st Century
　　　Benjamin, Ruha (2019) "Introduction: Discriminatory Design, Liberating Imagination" pages
　　　　　1-12 in *Captivating Technology: Race, Carceral Technoscience and Liberatory Imagination in Everyday Life.*

Thursday 1/11. Evolutionist Views of Technology
　　　Nye, David. E. (2006) "Can We Define Technology?" and "Does Technology Control Us?"
　　　　　pages 1-31 in *Technology Matters: Questions to Live With.* MIT Press, Cambridge, MA.

　　　Arthur, W. B. (2009). "Ch.1 Questions" and "Ch.2 Combination and Structure," in *The Nature of Technology: What it is and how it evolves.* Simon and Schuster.

Tuesday 1/16. Technological Determinism
　　　Bimber, B. (1990). Karl Marx and the three faces of technological determinism. *Social studies of science*, *20*(2), 333-351.

Jasanoff, S. (2016). "Ch. 1. The Power of Technology," pages 1-30, in *The Ethics of Invention: Technology and the Human Future*. WW Norton & Company.

Film: *Akira* (1988) directed by Katsuhiro Ôtomo (https://www.imdb.com/title/tt0094625/)

Thursday 1/18. Social Construction of Technology

Pinch, Trevor and Bijker, Wiebe (1987) "The Social Construction of Facts and Artifacts: Or, How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," in Bijker, Hughes & Pinch (eds.), The Social Construction of Technological Systems, Press, p. 17-50.

Winner, L. (1980). Do Artifacts Have Politics? *Daedalus*, 121-136.

> **First Response Memo due Sunday 1/21 by 12:00pm via Canvas.**

Tuesday 1/23. Technology and Modernity

Elias, N. (1995). Technization and Civilization. *Theory, Culture & Society*, *12*(3), 7-42.

Trevor Pinch and Ronald Kline (1996) "Users as Agents of Technological Change: The Social Construction of the Automobile in the Rural United States," Technology and Culture 37: 763-795.

Film: *Metropolis* (1927) directed by Fritz Lang (https://www.imdb.com/title/tt0017136/)

Thursday 1/25. Sociotechnical Systems

Thomas P. Hughes, 'The Evolution of Large Technological Systems', in Bijker, Hughes & Pinch (eds.), The Social Construction of Technological Systems (MIT Press, 1987) pp. 51-82.

Levinson, Marc (2017) The Now-Ubiquitous Shipping Container Was an Idea Before Its Time, *Smithsonian Magazine*

Tuesday 1/30. Invisible Technologies: Infrastructure

Star, Susan Leigh (1999) "The Ethnography of Infrastructure," American Behavioral Scientist 43.3 (1999), 377-391.

Larkin, Brian (2013) The Politics and Poetics of Infrastructure, *Annual Reviews of Anthropology* 42:327–443

Film: *El Buzo (The Diver)* 2018, 16 minute short film directed by Esteban Arrangoiz (Accessible here: https://www.nytimes.com/video/opinion/100000006232522/mexico-city-sewer-diver.html (Links to an external site.))

Thursday 2/1. Actor-Network Theory

Latour, B. (1992) 'Where are the missing masses? The sociology of a few mundane artifacts', in Bijker, W. E. and Law, J. (eds) *Shaping Technology/Building Society: Studies in Sociotechnical Change*, Cambridge, MA, MIT Press, pp. 225-58.

De Laet, M., & Mol, A. (2000). The Zimbabwe bush pump: Mechanics of a fluid technology. *Social Studies of Science*, *30*(2), 225-263.

Midterm Paper: Implosion Project due Sunday 2/5 by 11:59pm via Canvas.

Tuesday 2/6. Sociotechnical Imaginaries

Jasanoff and Kim (2009) Containing the Atom: Sociotechnical Imaginaries and Nuclear Power in the United States and South Korea, *Minerva* 47:11-146

Hilgartner, Stephen (2015) "Ch.3 Capturing the Imaginary: Vanguards, visions and the synthetic biology revolution," pages 33-50 in *Science and Democracy: Making Knowledge and Making Power in the Biosciences and Beyond,* edited by Stephen Hilgartner, Clark Miller, and Rob Hagendijk, Routledge

Thursday 2/8. Cyborgs and Feminist Technoscience

Haraway, Donna (1990) "A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s" pages 191-225 in *Feminism/Postmodernism* edited by Linda J. Nicholson, Routledge, New York, NY.

Hari Kunzru (1997) "You Are Cyborg," *Wired Magazine*
[https://www.wired.com/1997/02/ffharaway/]

Beltrán, H. (2023). "Chapter 4. Abuelitas as Infrastructure," p.90-111 in *Code Work: Hacking across the US/México Techno-Borderlands.* Princeton University Press

Film: *Sleep Dealer* (2008) with Alex Rodriguez w

Second Response Memo due Sunday 2/12 by 12:00pm via Canvas.

Tuesday 2/13. Race and Technology - Artificial Intelligence I.

Benjamin, Ruha (2019) "Introduction" and "Ch. 4 Technological Benevolence Do Fixes Fix Us? " pages 1-48 and 137-159 in *Race After Technology: Abolitionist Tools for the New Jim Code.* Polity Books

Film: *Sorry to Bother You* (2018) directed by Boots Riley
https://www.imdb.com/title/tt5688932/

Thursday 2/15. Race and Technology - Artificial Intelligence II.

Noble, S. U. (2018). "Introduction" and "Ch.1 A Society, Searching," pages 1-63 in *Algorithms of Oppression*. New York University Press.

Tuesday 2/20. Technology and War

> Merrin, W. (2018). "Chapter 10. #ParticipativeWar," pp. 195-217 in *Digital war: A critical introduction*. Routledge.
>
> Abraham, Yuval (2023) "A mass assassination factory': Inside Israel's calculated bombing of Gaza," *+972 Magazine* (Avaialble online: https://www.972mag.com/mass-assassination-factory-israel-calculated-bombing-gaza/)

Thursday 2/22.

> Tentative: Guest Lecture by Freddy Martinez, Director Lucy Parsons Labs

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Third Response Memo due Sunday 2/26 by 12:00pm via Canvas.

Tuesday 2/27. Risk and Failure

> Diane Vaughan, "Conformity and Tragedy," Ch. 9 in The Challenger Launch Decision: Risky Technology, Culture and Deviance at NASA (University of Chicago Press, 1996), p.334-386.
>
> Film: *The Host* (2006) directed by Bong Joon Ho
> https://www.imdb.com/title/tt0468492/?ref_=nv_sr_srsg_3

Thursday 2/29. Technology and the Self

> Wihua Wu, Steve Fore, Xiying Wang and Petula Sik Ying Ho, "Beyond Virtual Carnival and Masquerade: In-Game Marriage on the Chinese Internet," Games and Culture 2 (2007): 59-89.
>
> Tom Boellstorff, "Place and Time," Ch. 4 in Coming of Age in Second Life: An Anthropologist Explores the Virtually Human (Princeton, 2008), p.89-117.

Tuesday 3/5. Memes and Signs.

> Donovan, J., Friedberg, B., and Dreyfuss, E. (2022) *Meme Wars.* Bloomsbury Publishing. (Chapters TBD)

Thursday 3/7. WCAS Reading Period Begins