

CPLS UN3770:
Introduction to Digital Media
Spring 2017
Pupin Laboratories 412 | Tue/Thur, 1:10 - 2:25

Professor: Grant Wythoff
(gw2290@columbia.edu)
Heyman Center 304
Office Hours by appointment
Course site:

<https://gwijschhoff.github.io/digitalmedia>



This syllabus is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

Skip to the schedule...

Description

Over the past decade, digital media have made strange the very fabric of our conversations, movements, aesthetic experiences, and political consciousness. These changes were prepared for by information theorists in the 1940s, cyberneticians in the 1950s, and the architects of networked computation in the 1960s. But only now have we begun to live out the futures that were dreamed of by these technologists. Today with our digital devices, we experience their dreams as beliefs, daily routines, and compulsions.

This class will introduce students to the history and theory of digital media. We will begin by examining the historical roots of the concept of “information,” and then proceed along a “stack” of topics in digital culture: code, interface, device, infrastructure, and power. Each of these concepts will be explored through

a comparative framework, using hands-on exercises and readings from across the disciplines, including the philosophy of computation, history of technology, cultural studies, science fiction, and media theory. We will think historically (how have media been experienced as “new” at different moments in time?), theoretically (how exactly do we address “medium” as an object of study), and tactically (how can we use our local experience of digital devices as a framework for thinking global networks?).

Throughout the semester, in-class “exercises” will link the theory we’ve encountered in our readings to everyday practice, including a “[data detox](#)” designed by the Tactical Technology Collective, FemTechNet’s “[Locking Down Your Digital Identity](#)”, and Pretty Good Privacy (PGP) with [Keybase](#).

Grade breakdown

20% participation

The importance of the works under discussion lies not in the works themselves, but rather in their interrelationship with our discussions and other media that you and I encounter in our daily lives. This means that class participation is vital to the success of this course. Simply attending class will not be enough to earn full participation credit. Instead, you must be an active participant, someone who comes prepared and engages with all aspects of the class.

30% weekly posts

Each week, students will post a brief update (~300 words) to the CourseWorks blog by 7:00am on Tuesday. These posts can take the form of, among other things, a) an explanation, questioning, or complication of the week’s readings, b) an interesting document or resource that you’ve found related to them, or c) an update on the progress of your midterm or final project. This is simply a means of checking in with one another as we work through the ideas of the course.

25% “Re-design” assignment

One of the aims of this course is to explore the relationship between theory and practice. To this end, you will construct a “re-design” of an existing media system for your midterm, due March 9. These interventions can range from micro-level (e.g. proposing a particular tweak to the infrastructure of the Internet and tracing its consequences) to whole-cloth (e.g. envisioning an alternate peer-to-peer messaging system). You will situate this re-design amongst our readings up to this point, using the texts to help imagine the implications of your re-design.

The final form of this assignment should be a paper of 5 to 7 pages, properly referenced, and with additional media as necessary or desired. Virtually any medium could work: paper prototypes, clay, painting, video, etc. You will additionally give an informal presentation of your re-design to the class.

[Click here for details and resources on the midterm...](#)

25% final project

For your final project, you will select a specific digital device and trace the lifecycle of its manufacture, use, re-use, and disposal. This is a very big task. A single smartphone, for instance, contains over two hundred chemical compounds, and the scale of its production is truly global: from rare-earth metal mines in Baotou, to data centers in Iowa, to grey markets in Jakarta, and electronics scrap yards in Delhi. So, there are many different methods for going about this, many different pieces of the puzzle you can choose to focus on, and no two final projects will look alike.

The project consists of two components. First, you will produce some form of **conceptual model of your artifact**, using a map, icons, matrices, or 3D modeling. Examples include any or a combination of the following:

- Create a supply chain map for your artifact using [Sourcemap](#).
- Express the composition of your artifact using a symbol system like Otto Neurath's [Isotype](#) from the 1920s, a font called the Pictorial Communication Language ([PICOL](#)), [font awesome icons](#), or a [design structure matrix](#).
- Photogrammetry using the [123D Catch](#) app, which allows you to upload photos from your smartphone to the cloud, where they're transformed into a textured 3D model.

In addition to the above, you will write a **paper of 5-7 pages** that situates your artifact within the contexts discussed in class. I expect you to draw from the readings we considered, as well as secondary research from sources we did not cover. I ask that you submit a brief proposal of your project to me the week of our April 18th class. The final project is due May 8. You will also present on your artifact during the final two class sessions for around 5 minutes.

[Click here for details and resources on the final...](#)

Summary of assignment due dates

- **7am Tuesdays:** weekly post
- **Feb 23:** re-design proposal
- **March 9:** re-design paper and presentation due
- **April 18:** final project proposal
- **May 8:** final project due

Administrivia

Weekly attendance in class is expected. If you must be absent from a session for a serious reason, then you should contact me before the missed class and explain why you will not be in attendance. Cases of continuous, unexplained absence will result in a penalty to your grade or your ineligibility to complete the course. Attendance and active participation in discussions are part of fulfilling the course requirements. I will notify an advising dean if you have three or more unwarranted absences. No extensions will be given except in extreme (and verifiable) circumstances. These circumstances include reasons of health and extenuating circumstances, such as death of a family member.

Laptop policy

Because we will be conducting exercises in class, you are asked to bring your laptop to every session. Be sure to practice good screen etiquette: keep it to the side and don't stare too long.

Academic integrity

Columbia's intellectual community relies on academic integrity and responsibility as the cornerstone of its work. Graduate students are expected to exhibit the highest level of personal and academic honesty as they engage in scholarly discourse and research. In practical terms, you must be responsible for the full and accurate attribution of the ideas of others in all of your research papers and projects; you must be honest when taking your examinations; you must always submit your own work and not that of another student, scholar, or internet source. Graduate students are responsible for knowing and correctly utilizing referencing and bibliographical guidelines. When in doubt, consult your professor. Citation and plagiarism-prevention resources can be found at the GSAS page on Academic Integrity and Responsible Conduct of Research (<http://gsas.columbia.edu/academic-integrity>).

Failure to observe these rules of conduct will have serious academic consequences, up to and including dismissal from the university. If a faculty member suspects a breach of academic honesty, appropriate investigative and disciplinary action will be taken following Dean's Discipline procedures (<http://gsas.columbia.edu/content/disciplinary-procedures>).

Disabilities accommodations

If you have been certified by Disability Services (DS) to receive accommodations, please either bring your accommodation letter from DS to your professor's office

hours to confirm your accommodation needs, or ask your liaison in GSAS to consult with your professor. If you believe that you may have a disability that requires accommodation, please contact Disability Services at 212-854-2388 or disability@columbia.edu. Important: To request and receive an accommodation you must be certified by DS.

Schedule

Theories

January 17: introductions

January 19: definitions

Ronald R. Kline, *The Cybernetics Moment: Or Why We Call Our Age the Information Age*, (Baltimore: Johns Hopkins University Press, 2015), p. 1-36

- Introduction
- 1 War and Information Theory

January 24: tinkerers 1

James Gleick, *The Information: A History, A Theory, A Flood* (Vintage Books, 2012), pp. 3-12, 78-124, 233-268

- Prologue
- 4 To Throw the Powers of Thought into Wheel-Work
- 8 The Informational Turn

January 26: tinkerers 2

Alison Winter, “A Calculus of Suffering,” in *Science Incarnate: Historical Embodiments of Natural Knowledge*, ed. Christopher Lawrence and Steven Shapin (University of Chicago Press, 1998), 202–39.

Further reading: Theories

John Haugeland, “[Analog and Analog](#),” *Philosophical Topics* 12, no. 1 (Spring 1981): 213–25.

Ralph W. Gerard, “[Some of the Problems Concerning Digital Notions in the Central Nervous System](#),” in *Cybernetics: The Macy Conferences 1946-1953. The Complete Transactions*, ed. Claus Pias (Zürich: Diaphanes, 2016 [1950]), 171–202.

William Davies, “[How Statistics Lost Their Power](#),” *The Guardian*, Jan 19, 2017
[A Guide to Feminist Cybersecurity](#)

[DataRefuge](#), a public, collaborative project designed to safeguard federal climate and environmental data. [New York event](#) on Feb 4, 2017.

[Top Secret Rosies](#) (2010) PBS documentary

Jacob Gaboury, “[A Queer History of Computing](#),” *Rhizome* (2013)

Fiona Barnett et al., “[QueerOS: A User’s Manual](#),” *Debates in the Digital Humanities 2016* (Univ. of Minnesota Press, 2016)

Dreams**January 31: global cyberpunk 1**

William Gibson, *Neuromancer* (Ace Books, 1984), Part Two: The Shopping Expedition, pp. 43-69.

Xiao Liu, “[Magic Waves, Extrasensory Powers, and Nonstop Instantaneity: Imagining the Digital beyond Digits](#),” *Grey Room* 63 (Spring 2016): 42–69.

Exercise: Data Detox 1: Discovery

February 2: global cyberpunk 2

Eden Medina, *Cybernetic Revolutionaries: Technology and Politics in Allende’s Chile* (Cambridge: MIT Press, 2014), p. 1-14, 95-140

- Introduction: Political and Technological Visions
- 4 Constructing the Liberty Machine

February 7: afrofuturism 1

Delany, *Stars in My Pocket Like Grains of Sand* (Middletown, CT: Wesleyan University Press, 2004 [1984]), pp. 17-46.

Exercise: Data Detox 2: Being Social

February 9: afrofuturism 2

Mark Dery, “Black to the Future: Interviews with Samuel R. Delany, Greg Tate, and Tricia Rose,” in *Flame Wars: The Discourse of Cyberculture*, ed. Mark Dery (Durham, NC: Duke University Press, 1994), 179–222.

Approaches**February 14**

John Durham Peters, “Understanding Media,” *The Marvelous Clouds: Toward a Philosophy of Elemental Media* (University of Chicago Press, 2016), p. 13-52.

Exercise: Data Detox 3: Searching, Surfing, Shopping

February 16

Wendy Hui Kyong Chun, “Somebody Said New Media,” *New Media / Old Media: A History and Theory Reader*, 2nd ed. (Routledge, 2016)

Interlude: Information Wars**February 21**

Hannah Barton, “Tactical Virality”, *Real Life*, February 14, 2017

Samanth Subramanian, “Welcome to Veles, Macedonia: Fake News Factory to the World”, *Wired*, February 15, 2017

Craig Silverman, “Here’s Why Facebook’s Trending Algorithm Keeps Promoting Fake News”, *Buzzfeed*, October 26, 2016

Browse the Oxford Internet Institute’s [Political Bots](#) project

February 23

(re-design project proposal due by e-mail or in person)

John Dewey, [Review of Public Opinion by Walter Lippmann](#), *The New Republic*, May 3, 1922

C.K. Ogden and I.A. Richards, excerpts from *The Meaning of Meaning: A Study of the Influence of Language upon Thought and of the Science of Symbolism* (1923)

Exercise: Data Detox 4: Connecting

Interfaces**February 28: users 1**

Don Norman, [“The Psychopathology of Everyday Things”](#) in *The Design of Everyday Things* (Basic Books, 2013 [1988]), pp. 1-36.

Exercise: Data Detox 5: Making Choices

March 2: users 2

Bruce Sterling, *Shaping Things* (Cambridge: MIT Press, 2005).

March 7: makers 1

Lisa Nakamura, [“Indigenous Circuits: Navajo Women and the Racialization of Early Electronic Manufacture,”](#) *American Quarterly* vol. 66, no. 4 (2014): 919–941.

Steven J. Jackson, [“Rethinking Repair,”](#) in *Media Technologies: Essays on Communication, Materiality, and Society* (Cambridge: MIT Press, 2014), 221–39.

Exercise: Data Detox 6: Who Do They Think You Are?

March 9: makers 2

(Re-design assignment due)

Debbie Chachra, [“Why I am Not a Maker,”](#) *The Atlantic*, Jan 23, 2015.

Joi Ito, “[Shenzhen Trip Report: Visiting the World’s Manufacturing Ecosystem](#)” [blog post].

Tim Maughan, “[The Changing Face of Shenzhen, the World’s Gadget Factory](#),” *Vice*, Aug 19, 2015.

An Xiao Mina, “[‘Created’ in China: Shenzhen is Making Hardware Like Silicon Valley Makes Apps](#),” *Fusion*, Sept 7, 2016.

SPRING BREAK: March 13-17

Devices

March 21: privacy 1

Zeynep Tufekci, “[The Truth About the WikiLeaks C.I.A. Cache](#)”, *The New York Times*, March 9, 2017.

Stephen T. Margulis, “[Three Theories of Privacy: An Overview](#),” in *Privacy Online: Perspectives on Privacy and Self-Disclosure in the Social Web* (2011)

Exercise: Data Detox 7: Creating a New You

March 23: privacy 2

Eric Hughes, “[A Cypherpunk’s Manifesto](#)” (1993)

McKenzie Funk, “[Should We See Everything a Cop Sees?](#)”, *The New York Times*, October 18, 2016

Check your [social media fingerprint](#) across browsers (from robinlinus on GitHub)

Browse [A DIY Guide to Feminist Cybersecurity](#), curated by HACK*BLOSSOM

March 28: habits 1

Dominic Pettman, *Infinite Distraction* (Polity, 2015), Preface and Introduction: I Know Why the Caged Bird Tweets

Exercise: Data Detox 8: What Next?

March 30: habits 2

Wendy Chun, *Updating to Remain the Same*, (Cambridge: MIT Press, 2016),
interstitial sections

Infrastructures**April 4: networks 1**

Nicole Starosielski, *The Undersea Network*, (Duke University Press, 2015)

- “Introduction: Against Flow”
- 3 “Gateway: From Cable Colony to Network Operations Center”

Check out project website at <http://surfacing.in/>

Exercise: FemTechNet’s “[Locking Down Your Digital Identity](#)”

April 6: networks 2

Christian Sandvig, “[Connection at Ewiiapaayp Mountain: Indigenous Internet Infrastructure](#)” in *Race After the Internet*, ed. Lisa Nakamura and Peter Chow-White (Routledge, 2012), p. 168-200.

Neal Stephenson, “[Mother Earth Mother Board](#),” *Wired* (December 1996).

April 11: waste 1

Jennifer Gabrys, *Digital Rubbish: A Natural History of Electronics*, (Univ. of Michigan Press, 2011)

- Introduction: A Natural History of Electronics
- 3 Shipping and Receiving: Circuits of Disposal and the ‘Social Death’ of Electronics

Exercise: Pretty Good Privacy (PGP) with [Keybase](#)

April 13: waste 2

Abhimanyu Shrivastava, “[Transboundary Movement of E-Waste](#),” *International Policy Digest*, Sept 13, 2016

Andrew J. Hawkins, “[E-Waste Empire](#),” *The Verge*, June 22, 2016

Politics**April 18: ethics**

(Final project proposal due by e-mail or in person)

Alexis Shotwell, *Against Purity: Living Ethically in Compromised Times* (University of Minnesota Press, 2016), pp. 1-19, 107-135.

- Complexity and Complicity: An Introduction to Constitutive Impurity
- 4 Consuming Suffering: Eating, Energy, and Embodied Ethics

April 20: control

Bernard Harcourt, *Exposed: Desire and Disobedience in the Digital Age* (Harvard University Press, 2015), p. 1-28

- The Expository Society

Giorgio Agamben, *What is an Apparatus?* (Stanford Univ Press, 2009), p. 1-24.

April 25: publics

Danah Boyd, “White Flight in Networked Publics” in *Race After the Internet*, ed. Lisa Nakamura and Peter Chow-White (Routledge, 2011), p. 203-222.

Final project presentations

April 27

Final project presentations, continued

Acknowledgments

Thanks to Nick Knouf and Stuart Candy for ideas on the re-design assignment, as well as Marie Hicks, Lev Manovich, Miriam Posner, Jim Brown, Dennis Tenen, Jentery Sayers, and Nick Seaver, whose syllabi and pedagogy influenced the design and content of this course.