

IHSS 6960 - Digital Studies

Syllabus, Fall 2019

Tuesdays, 4 to 7 PM, Sage 2211

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Office: West 403, Office Hours: Tuesday/Friday 12-1

Digital Studies is an interdisciplinary HASS graduate course that examines the politics, materiality, and histories digital code, virtual space, data, and information. This course will see students engage in foundational and analytic literatures from across Media Studies, Science & Technology Studies, Information Science, Art History, and Cognitive Science.

This course focuses on “the digital” as a mangle of technologies, materials, histories, practices, ideologies, narratives, rhetorics, and aesthetics. The digital can multiply mean electronic media, ways of counting and accounting for, binary data structures, networked aesthetic imagery, the underpinnings of biological and cybernetic systems, futures and pasts, and political/ideological ways of knowing. One “applies” the digital as a set of tools, ways of mapping, neoliberal logistics, and ways of seeing.

Due to the interdisciplinary nature and audience of the class, Digital Studies readings, discussions, and writing assignments will privilege synthetic and diffractive ways of knowing. In other words, students will be tasked with “reading across and through” literature from a diverse array of disciplines, political positions, and epistemological and ontological frameworks. Many of our readings will reflect how “the digital” is constructed in different, even oppositional ways.

Similarly, what may be “core disciplinary texts” for some students will be “empirical pieces to be analyzed” for other students, depending on disciplinary and intellectual commitment. Everyone will get different traction out of all the readings, and there are enough that you should be able to weigh your weekly synthesis work in ways that suit you and your field. It also means that I’m expecting close engagement and charitable readings of each of the assigned texts for the week.

The class will feature three major analytic assignments. Each week, students will submit short synthesis assignments that connect and critique that week’s bundle of readings. During midterms, students will enact and reflect upon a rapid critical technical practice project. Finally, students will submit a term paper that engages with a “digital text” of the student’s choice.

Required Text:

- Paul Virilio (1989), *War and Cinema: the Logistics of Perception*, Verso Books

All other readings will be made available on LMS.

Recommended Texts (that we will be touching on a few times throughout the semester):

- Jens Schröter (2014), *3D: History, Theory, and Aesthetics of the Transplane Image*, Bloomsbury
- Janet Vertesi (2015) *Seeing Like A Rover: How Robots, Teams, and Images Craft Knowledge of Mars*. University of Chicago Press
- *digitalSTS: A Field Guide for Science & Technology Studies*, Eds. Janet Vertesi and David Ribes (ppgs. 423-446)
- *The New Media Reader*, Eds. Nick Montfort and Noah Wardrip-Fruin

Note: The required chapters and excerpts from the above four volumes will be available on LMS. The full books are listed here if students want to dive deeper into them.

Assignments:

Synthesis Memos: 55 Points total

Critical Technical Practice Assignment: 20 Points

Hermeneutic Seminar Paper: 25 Points

Weekly Synthesis Memos

500-800 words each

Due Monday night at 11:59 PM to LMS, every week there is assigned reading

5 Points each, 55 Points total

This course features a heavy and diverse reading list, and generally requires that students engage with four to six readings each week. Readings are sourced from many of the disciplines that shape the production and analysis of “the digital,” including STS, Media Studies, Literature, Art History, Information Science, Computer Science, and Mathematics. While all of the readings in a given week are designed to speak “to” each other, very few are direct response pieces to one another; there may even be some weeks where readings share no common citational practices or intellectual orientations.

Due to the volume and breadth of readings in the class, we won’t have time each week to do a deep review of each text (though, of course, students are encouraged to bring critical and comprehension questions to class for discussion/clarification). Rather, students will need to do diffractive work before class each week, reading “across and through” the week’s assigned texts.

The Weekly Synthesis Memos represent fragments of students’ diffractive work in prose form. While every memo should ideally, touch upon most or all of the assigned readings, the goal is for students to begin to form analytic arguments through the constraints of the assigned readings. **For example**, if students were to write a memo for the Introductory week, one student may sketch out the contrasting epistemological dimensions of human-computational “thought” and “thinking” among Bush, Turing, and Licklider, and use McLuhan and Golumbia as lenses to

understand the material/ecological (McLuhan) or cultural/political (Golumbia) ramifications of those epistemic positions upon Bush, Turing, and Licklider’s proposed designs. Similarly, another student may contrast McLuhan and Golumbia’s ontological standpoints on the “status” of computational media (one as a material extension of a global nervous system, and one as a particular cultural and political knowledge practice), and explore the analytic ramifications of “reading” of Bush’s and Turing’s computational systems using through those theoretical apparatuses.

In these cases, though both essays demonstrate understanding and depth of critique of the same readings, they each take different analytic or diffractive “reads” of the relationships among the texts, including which texts operate as critical lenses and which as objects of critique. Importantly, while the sample memos implicitly draw from each student’s prior knowledge and disciplinary expertise, they are also structured in a way that uses the assigned texts as the primary vehicles for argumentation and analysis, rather than leaning on an outside authority, which may distance the engagement with the text (e.g., “All of these people are wrong because Papa Marx says so.”)

Though memos are graded, they are not designed for developing refined thesis statements. Rather, they are for practicing synthetic and hermeneutic writing and analysis skills, and to help provide scaffolding for later assignments, portfolio pieces, and lines of argumentation.

Memos will not be accepted after 12:00 AM the day of class, resulting in a “0” for that week. Students can use the following rubric as a guideline for structuring their Weekly Memos:

Grade	Qualities
5	Writeup shows understanding, depth of thought, and engagement with most or all of the assigned texts. Summary is kept to a minimum in favor of synthetic analysis. Claims are generally backed up with careful reference to the text. Writing is relatively clear and precise.
4	Analysis lacks depth, or shows limited engagement with most of the texts. Argument may be cogent, but relies too heavily on “outside” sources. May replace analysis with summary. Texts are referred to only generally, or only one text is engaged with thoroughly. No proofreading.
3	Summarizes readings, does not connect readings to one another, or show any level of engagement with the text beyond a surface level reading. References to the text are vague or rushed. Prose is bordering on outline/notes.
2	Does not show engagement with the text, even through summary. Writing may have devolved into a rant or manifesto.
1	Student has clearly not read the text, has submitted hastily cobbled together notes, probably passive-aggressively.

Critical Technical Practice Assignment (20 Points)

2 Weeks of Material Engagement, 3000 word writeup/analysis/presentation

Writeup due November 2

For two weeks, students will use the facilities in the Corridor of Creativity to pursue their own Critical Technical Practice project that intersect their own research interests with computational design, digital space, and critical software studies/hermeneutics.

Week 1 will feature a tour of the facilities, brainstorming and mind mapping, project development and planning, and reading collection. Students will pursue the material dimensions of the project over the course of the following week.

Week 2 will feature report backs, a diffractive reading-through of the techniques and socialities of digital fabrication spaces, and collaborative drafting of writeups and reflections.

Readings will be assigned based upon the collective projects of the class. Final writeups will be due at the end of Week 2; November 2.

Final Hermeneutic Term Paper (25 points)

Length: 6000 words

Due: December 18th, end of day

Students will prepare a term paper using hermeneutic methods to analyze a digital “text” of their choice. “Text” is open to interpretation, and may include a close reading of an author’s work, a software/hardware studies critique, an exploration and theorization of a digital space (broadly conceived), or other constructions of text as discussed in class or with consultation of the professor. This essay will practice both synthetic and analytic reading and writing skills, and will involve building a dialogue between synthesized literatures (combining those we have read in class and of the student’s choosing) and the analytic text, using that interplay to complicate both. The term paper can be thought of as an extension of the Synthesis Memos, but with the potential addition of an empirical/textual unit of analysis and outside-of-class readings.

Units:

Unit 1: Introduction (September 10)

- Vannevar Bush, (1945). “As We May Think” *The Atlantic*
- Alan Turing, (1950) “Computing Machinery and Intelligence.” *Mind* 49: 433-460
- JCR Licklider, (1960) “Man-Computer Symbiosis.” in IRE Transactions on Human Factors in Electronics
- Marshall McLuhan (1962 & 1964) “Two by McLuhan: The Galaxy Reconfigured and The Medium is the Message” from *The New Media Reader*
- David Golumbia (2009), “Intro” and “Chapter 1” *The Cultural Logic of Computation*, Harvard University Press

Unit 2: Coding (September 17)

- Stéphane Couture (2019), “The Ambiguous Boundaries of Computer Source Code and Some of its Political Consequences,” in *digitalSTS: A Field Guide for Science & Technology Studies*, Eds. Janet Vertesi and David Ribes (ppgs. 136- 156)

- Nick Seaver (2017), "Algorithms as Culture: Some Tactics for the Ethnography of Algorithmic Systems" in *Big Data & Society* 4 (2), 2053951717738104
- Marisa Cohn (2019) "Keeping Software Present: Software as a Timely Object for STS Studies of the Digital" in *digitalSTS: A Field Guide for Science & Technology Studies*, Eds. Janet Vertesi and David Ribes (ppgs. 423-446)
- Annette Vee, (2013). "Understanding Computer Programming as a Literacy." *Literacy in Composition Studies*, Vol. 1 No. 2
- Alexander Galloway (2014). "The Cybernetic Hypothesis." *differences: A Journal of Feminist Cultural Studies*. Vol. 25 Iss. 1

Unit 3: Systems of Perception (September 24)

- Paul Virilio (1989), *War and Cinema: the Logistics of Perception*, Verso Books
- Offer Gal and Raz Chen-Morris (2013), "Nature's Drawing," from *Baroque Science*, University of Chicago Press (ppgs. 117-160)
- Janet Vertesi (2015) "Calibration: Crafting Trustworthy Images of Mars" and "Image Processing: Drawing As and its Consequences," from *Seeing Like A Rover: How Robots, Teams, and Images Craft Knowledge of Mars*. University of Chicago Press
- Jack Stilgoe (2017), "Seeing Like a Tesla: How Can We Anticipate Self-Driving Worlds?" *Glocalism: A Journal of Culture, Politics, and Innovation*, Vol. 2017, Iss. 3

Unit 4: Ontologies (October 1)

- Lindsay Poirier (2017), "A Turn for the Scruffy: An Ethnographic Study of Semantic Web Architecture" *Proceedings of the 2017 ACM on Web Science Conference*, Pages 359-367
- Tara McPherson (2013), "U.S. Operating Systems at Mid-Century: The Intertwining of Race and UNIX," in *Race After the Internet*, Eds. Lisa Nakamura, Peter Chow-White, Routledge
- Fiona Barnett, Zach Blas, Micha Cárdenas, Jacob Gaboury, Jessica Marie Johnson, and Margaret Rhee (2016), "Queer OS: A User's Manual." in *Debates in the Digital Humanities 2016*, Eds. Matthew K. Gold and Lauren F. Klein, University of Minnesota Press
- Cadence Kinsey (2014), "Matrices of Embodiment: Rethinking Binary and the Politics of Digital Representation," in *Signs*, Vol. 39, No. 4.
- Katherine Hayles (1999), "Prologue and Toward Embodied Virtuality," in *How We Became Posthuman*. The University of Chicago Press

Unit 5: Images/Vision (October 8)

- Ivan Sutherland (1964), "Sketchpad: A Man-Machine Graphical Communication System," selection from *The New Media Reader*
- Steve Anderson (2017), "Introduction," *Technologies of Vision: The War Between Data and Images*, The MIT Press
- Jonathan Crary (1992), "The Camera Obscura and its Subject", from *Techniques of the Observer*, The MIT Press (ppgs 25-66)

- Jens Schröter (2014), "Introduction," *3D: History, Theory, and Aesthetics of the Transplane Image*, Bloomsbury (ppgs. 1-57)
- Stephanie Boluk and Patrick Lemiux (2017), "Stretched Skulls," from *Metagaming: Playing, Competing, Spectating, Cheating, Trading, Making, and Breaking Videogames*, The University of Minnesota Press (ppgs 77-121)

Unit 6: Space (October 15)

- Christopher Kelty and Hannah Landecker (2006), "Theory of Animation: Cells, L-Systems, and Film," *Grey Room*, No. 17
- Jens Schröter (2014) "1935-1945: People without Space: Stereoscopy in the Third Reich" and "Conclusion, Repetition and Difference, Resume", in *3D: History, Theory, and Aesthetics of the Transplane Image*, Bloomsbury
- John Law (2000), "Objects, Spaces, & Others," *Centre for Science Studies, Lancaster University*
- Sean Cubitt (2014), "Chapter 4", *The Practice of Light: A Genealogy of Visual Technologies from Prints to Pixels*, The MIT Press (ppgs. 153-234)
- US Patent #7104891 B2

Critical Technical Practice 1 (October 22)

Critical Technical Practice 2 (October 29)

Unit 7: Networks (November 5)

- Heinz von Foerster (1979) "Cybernetics of Cybernetics", in *Communication and Control*, K. Krippendorff (ed.), Gordon and Breach, New York, pp. 5–8
- Ted Nelson (1965), "A File Structure for the Complex, the Changing, and the Indeterminate," *Complex Information Processing. ACM 20th National Conference*. 24 Aug 1965. Address.
- Tommaso Venturini, Anders Kristian Munk, Mathieu Jacomy (2019), "Actor-Network VS Network Analysis VS Digital Networks Are We Talking About the Same Networks?" in *digitalSTS: A Field Guide for Science & Technology Studies*, Eds. Janet Vertesi and David Ribes (ppgs. 510 - 523)
- Wendy Hui Kyong Chun and Sarah Friedland (2015), "Habits of Leaking: Of Sluts and Network Cards," in *differences: A Journal of Feminist Cultural Studies*, Vol. 26 Iss. 2

Unit 8: Data (November 12)

- Rob Kitchin and Gavin McArdle (2016), "What Makes Big Data, Big Data? Exploring the Ontological Characteristics of 26 Datasets," *Big Data & Society*.
- Jacqueline Wernimont (2019) "Introduction" and "We Don't Do Body Counts," in *Numbered Lives: Life and Death in Quantum Media*, The MIT Press (ppgs. 2-15 and 51-85)
- danah boyd and Kate Crawford (2012) "Critical Questions for Big Data: Provocations for a cultural, technological, and scholarly phenomenon," *Information, Communication, and Society*, Vol. 15 Iss. 5

- Nick Seaver (2015), “The Nice Thing about Context is that Everyone Has it (a response to boyd and Crawford)”, *Media, Culture & Society*
- Shaka McGlotten (2016), “Black Data,” in *No Tea, No Shade: New Writings in Black Queer Studies*, Ed. E. Patrick Johnson, Duke University Press
- Geof Bowker & Susan Leigh Star (2000), “Categorical Work and Boundary Infrastructures: Enriching Theories of Classification” in *Sorting Things Out: Classification and Its Consequences*, The MIT Press

Unit 9: Data Viz (November 19)

- Bruno Latour (1986), “Visualisation and Cognition: Drawing Things Together” in H. Kuklick (editor) *Knowledge and Society Studies in the Sociology of Culture Past and Present*, Jai Press vol. 6, pp. 1-40
- Steve Anderson (2017), “Data Visualization,” from *Technologies of Vision: The War Between Data and Images*, The MIT Press
- Johanna Drucker (2011), “Humanities Approaches to Graphical Display,” in *Digital Humanities Quarterly*, Vol. 5 No. 1
- Daniel Cardoso Llach (2019), “Tracing Design Ecologies: Collecting and Visualizing Ephemeral Data as Method in Design and Technology Studies,” in *digitalSTS: A Field Guide for Science & Technology Studies*, Eds. Janet Vertesi and David Ribes
- Adrian Mackenzie (2019) “Distributive Numbers: A Post-demographic Perspective on Probability” in *Modes of Knowing: Resources from the Baroque*, Edited by John Law, Evelyn Ruppert
- Marc Berg (1997), “On Distribution, Drift and the Electronic Medical Record: Some Tools for a Sociology of the Formal,” in *Science, Technology, and Human Values*

Unit 10: Information (November 26)

- Claude Shannon (1948), “A Mathematical Theory of Communication,” *The Bell System Technical Journal*, Vol. 27, pp. 379–423, 623–656, July, October, 1948.
- Delinda Collier (2016), Excerpt from *Repainting the Walls of Lunda: Information Colonialism and Angolan Art*, The University of Minnesota Press
- Wendy Chun (2011), “The Undead of Information” and “Always Already There, or Software as Memory”, from *Programmed Visions: Software and Memory*, The MIT Press (ppgs 133-173)
- David Berry (2014), “The Reification of Everyday Life,” from *Critical Theory and the Digital*, Bloomsbury (ppgs YYYY - ZZZZ)

Unit 11: Infrastructure, Dirt, Platform (December 3)

- Miriyam Aouragh and Paula Chakravartty (2016), “Infrastructures of Empire: Towards a Critical Geopolitics of Media and Information Studies,” in *Media, Culture, and Society*
- Shannon Mattern (2017), Excerpt from *Code, Clay, Dirt: Five Thousand Years of Urban Media*. The University of Minnesota Press
- Benjamin Bratton (2015), Excerpt from *The Stack: On Software and Sovereignty*, The MIT Press

- Adrian MacKenzie and Anna Munster (2019), "Platform Seeing: Image Ensembles and their Invisibilities," in *Theory, Culture & Society*
- Thomas Apperley and Jussi Parikka (2015) "Platform Studies' Epistemic Threshold," in *Games & Culture*
- Friedrich Kittler (1995), "There is No Software," in *cTheory*

Unit 12: Intervention (December 10)

- Ted Nelson (1974), Excerpt from "Computer Lib / Dream Machines," featured in *The New Media Reader*
- James Malazita and Korryn Resetar (forthcoming) "Infrastructures of Abstraction: How Computer Science Produces Anti-Political Subjects" *Digital Creativity*
- Annette Vee (2017), "Computing for Everyone," in *Coding Literacy: How Computer Programming Is Changing Writing*, The MIT Press
- Carla Ilten and Paul-Brian McInerney, (2019) "Social Movements and Digital Technology: A Research Agenda," in *digitalSTS: A Field Guide for Science & Technology Studies*, Eds. Janet Vertesi and David Ribes (ppgs. 198-220)
- Anders Munk, Axel Meunier, and Tommaso Venturini (2019), "Data Sprints: A Collaborative Formal in Digital Controversy Mapping" in *digitalSTS: A Field Guide for Science & Technology Studies*, Eds. Janet Vertesi and David Ribes
- Virginia Eubanks (2018), "The Allegheny Problem," in *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor*, Macmillan Publishers

Final Essay: December 18