

Instructor: Megan Finn

Meetings: Tuesday 1:30-4:30

Location: Parrington Hall Room 206

Course Title: Information Infrastructure Studies (INFX 598)

Course Description:

In this seminar, we will examine the making, maintenance, and use of infrastructures for circulating information. This class covers theoretical and historical perspectives on the development of infrastructure, methods for studying infrastructure, and case studies of infrastructures. We will pay close attention to the cultural, social and political aspects of information infrastructure as we examine case studies of how vast means for circulating information developed and endured over centuries, or, equally importantly, failed.

This course will familiarize students with different conceptual approaches for considering the cultural, social and political dimensions of information infrastructures. Concepts related to information infrastructures include classification, measurement, standards, objectivity, sociality, and nationalism, amongst other things. Students will be asked to read classic analysis of information infrastructures and discuss them in a seminar style classroom setting. The class will culminate in a case study using the theoretical lenses we discuss in class. Students will be guided through the process of writing a long paper including time to workshop paper ideas and drafts.

Course Objectives:

Upon successful completion of the course, student will:

- Understand various theories and analytical frameworks for examining information infrastructure
- Utilize approaches for investigating various examples of infrastructural development, operation and failure
- Apply concepts from the course to their own research project

ASSIGNMENTS

Readings

You will need to create an account on Zotero via Zotero.org. I highly recommend downloading the desktop client. All of the readings will be available via the Zotero group as pdfs, or via links to online resources in the UW library. The weekly readings are listed in the syllabus. There will sometimes be weeks where you can select a reading from several choices. Some weeks also have “optional” readings listed – these readings are definitely not required, though may be useful for the purposes of final papers, and for weeks when you are the discussion leader. Additionally, doctoral students in the class might want to read beyond the syllabus. I will be adjusting the readings throughout the quarter to accommodate the interests of the class.

Analyze an information infrastructure

At least three of these assignments and many of the class discussions will require you to select an information infrastructure for investigation. Many of you will already have a project in mind based on ongoing research interests. Other students may have an information infrastructure that you have always wanted to spend more time considering. Others may select to investigate an information infrastructure that the professor suggests. Using the readings in this class, you will examine the cultural, political, and social dimensions of this infrastructure. I recommend selecting something for

which aspects of the infrastructure are easily available to you for analysis throughout the quarter. If you don't have anything in mind, I have two suggestions: one is select some aspect of the data rescue project (i.e. datasets available from the EPA about clean water) and use this as a starting point to think about information infrastructure. The second suggestion is to consider USGS publication of earthquake-related data.

WRITING

20% weekly writings

1-2 pages of rough writing reflecting on ideas from the readings and applying the concepts from the readings to an information infrastructure of your choice. Ideally this writing will contribute to your final paper. These should be posted to Canvas 24 hours before class as part of the weekly discussion. After you post your thoughts, please take the time to peruse your classmates' writing.

30% paper: 3000-6000 word paper.

Your paper can take many forms:

1. Analyze an information infrastructure utilizing the constructs developed in the readings in this class. You should develop your analysis of an information infrastructure using original analysis of the infrastructure using primary documents, interviews, and other sources. In the final paper, you will expand your analysis of your information infrastructure using 2-3 concepts covered in the class.
2. Review literature on a historic information infrastructure. Examine this historical information infrastructure from the perspectives of some of the concepts developed in the class. You may incorporate primary or secondary sources into your analysis of the historic information infrastructure.
3. Explore a single concept from infrastructure studies throughout some of the literature assigned in this class. If you decide to select this option, I would expect that you read beyond the literature assigned in this class to consider a concept more broadly. Another option would be to read three to four books associated with the course content, and trace that concept through those works.
4. Write a paper that shows how your research extends the concepts and theories associated with information infrastructure explored in this class. This is an advanced option.

This paper can be done with a partner or on your own. I will periodically ask for updates on your paper in class. I expect that this paper will be a well-researched first draft of a paper to be submitted to a conference, journal, or dissertation chapter. Please check in with me either in person, or over email in the first few weeks of the class to discuss your plans for the paper. Your final paper should have an argument and utilize the concepts developed throughout the quarter.

CLASSROOM

20% presentation of the readings/discussion leader

Working in groups of 1-2, you will facilitate a discussion about the readings for the week. First, you will present the readings of the week. The presentation of the readings should summarize the readings, explain who the authors are and what they are trying to argue, what kind of evidence the authors use to make their arguments, and then connect the readings to other themes in the course. I expect that you will do one or two "optional" readings (ideally to be discussed with the instructor).

You will then facilitate a conversation about the readings. Facilitating a conversation involves: 1) creating a discussion thread about the readings of the week, and posting some questions about the

readings to our course discussion board by Wednesday at 11:59PM the week before class meets, 2) responding to, commenting on, extending, and connecting the posted comments from your classmates – this can be done online and/or during class time 3) coming up with a series of discussion prompts generated from the readings and the online writing that you will use to facilitate a 30 minute conversation in class. This in-class conversation can be whole group, small groups, or some combination -- however you/your team feels is most appropriate.

20% analysis of an information infrastructure using the concepts in the readings of the week

Working in groups of 1-2, you will create a 30-minute presentation about the particular content as applied to an existing or historical information infrastructure. This can involve explaining how to apply these concepts in your own investigation of an information infrastructure. The presentation must be interactive, involve an activity for participants, connect to the readings for the week, and should involve some kind of sharing of evidence/data with the class. Ideally, you can share the infrastructure that you are studying with the class and invite the rest of the class to join you in your analysis.

10% participation in online discussions and in class discussion

I expect that everyone will come to class having done the readings and participate in class discussions. Unexcused absences will result in very low participation grades.

Week 1: Course structure, concepts, overview

Bowker, Geoffrey C, Karen Baker, Florence Millerand, and David Ribes. "Towards Information Infrastructure Studies: Ways of Knowing in a Networked Environment." In *International Handbook of Internet Research*, edited by Jeremy Hunsinger, Matthew Allen, and Lisbeth Klasrup. The Netherlands: Springer.

Star, SL, and K. Ruhleder. "Steps Toward an Ecology of Infrastructure: Design and Access for Large Information Spaces." *Information Systems Research* 7, no. 1 (1996).

Rob Kitchin, author. *The Data Revolution: Big Data, Open Data, Data Infrastructures & Their Consequences*. Los Angeles: SAGE, 2014. [Chapter 2]

Edwards, Paul N, Steven J Jackson, Geoffrey C Bowker, and Cory P Knobel. "Understanding Infrastructure: Dynamics, Tensions, and Design." In *History & Theory of Infrastructure: Lessons for New Scientific Cyberinfrastructures*. Ann Arbor, MI, 2007.

Sandvig, Christian. "The Internet as Infrastructure." In *The Oxford Handbook of Internet Studies*, edited by William S. Dutton. Oxford: Oxford University Press, 2013.

Optional:

Borgman, Christine L. *Scholarship in the Digital Age: Information, Infrastructure, and the Internet*. Cambridge, Mass.: MIT Press, 2007.

Week 2: Urban infrastructures

Marvin, Simon, and Stephen Graham. *Splintering Urbanism : Networked Infrastructures, Technological Mobilities and the Urban Condition*. London: London, 2001. [Introduction, Chapters 1, 2, 5; Optional: All of section 1]

Paine, D., and C. P. Lee. "Producing Data, Producing Software: Developing a Radio Astronomy Research Infrastructure." In *2014 IEEE 10th International Conference on E-Science*, 2014.

Week 3: Visibilities and invisibilities: Studying information infrastructure

Star, Susan. "The Ethnography of Infrastructure." *American Behavioral Scientist* 43, no. 3 (November 1, 1999): 377–91.

Geiger, R. S., and D. Ribes. "Trace Ethnography: Following Coordination through Documentary Practices." In *2011 44th Hawaii International Conference on System Sciences*, 1–10, 2011.

Ribes, David. "Ethnography of Scaling, Or, How to a Fit a National Research Infrastructure in the Room." In *Proceedings of the 17th ACM Conference on Computer Supported Cooperative Work & Social Computing*, 158–70. CSCW '14. New York, NY, USA: ACM, 2014.

Choose 1:

Ribes, David. "The Kernel of a Research Infrastructure." In *Proceedings of the 17th ACM Conference on Computer Supported Cooperative Work & Social Computing*, 574–87. CSCW '14. New York, NY, USA: ACM, 2014.

OR

Ribes, David, and Jessica Beth Polk. "Organizing for Ontological Change: The Kernel of an AIDS Research Infrastructure." *Social Studies of Science* 45, no. 2 (April 1, 2015): 214–41.

Week 4: Classification (and Objectivity)

Bowker, Geoffrey C, and Susan Leigh Star. 1999. *Sorting Things Out: Classification and Its Consequences*. Cambridge, Mass.: MIT Press. [Introduction, Chapter 1, 2, 10]

Sismondo, Sergio. *An Introduction to Science and Technology Studies*. 2nd ed. Chichester, West Sussex, U.K. ; Malden, MA: Wiley-Blackwell, 2010. [Chapter 12]

Optional:

Daston, Lorraine, and Peter Galison. "The Image of Objectivity." *Representations*, no. 40 (October 1992): 81–128. doi:10.2307/2928741.

Daston, Lorraine. *Objectivity*. New York : Cambridge, Mass.: Zone Books ; Distributed by the MIT Press, 2007.

Week 5: Standards

Abbate, Janet. *Inventing the Internet*. Inside Technology. Cambridge, Mass: MIT Press, 1999. [Introduction, Chapter 7]

Busch, Lawrence. *Standards: Recipes for Reality*. Infrastructures Series. Cambridge, Mass.: MIT Press, 2011. <http://site.ebrary.com/lib/uwash/reader.action?docID=10509223>. [Chapter 1, Optional: 5]

David L. Stearns. *Electronic Value Exchange: Origins of the VISA Electronic Payment System*. History of Computing (London, England). London ; New York: Springer, 2011. [preface, Chapter 1, 7]

Optional:

Russell, Andrew L. *Open Standards and the Digital Age: History, Ideology, and Networks*. Cambridge Studies in the Emergence of Global Enterprise. New York, NY: Cambridge University Press, 2014. [Introduction]

Geoffrey C. Bowker. *Memory Practices in the Sciences*. Inside Technology. Cambridge, Mass.: MIT Press, 2005. [Chapter 3: Databasing the World]

Week 6: Measurement

Martin, Aryn, and Michael Lynch. "Counting Things and People: The Practices and Politics of Counting." *Social Problems* 56, no. 2 (May 2009): 243–66.

Pine, Kathleen H., and Max Liboiron. "The Politics of Measurement and Action," 3147–56. ACM Press, 2015.

Choose 1:

Edwards, Paul N. 2010. *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming*. Cambridge Mass.: The MIT Press. [Introduction, Chapter 11-13]

OR

James C. Scott, author. *Seeing like a State: How Certain Schemes to Improve the Human Condition Have Failed*. Yale Agrarian Studies. New Haven: Yale University Press, 1998. [Introduction, Chapter 3]

OR

Igo, Sarah E. *The Averaged American*. Harvard University Press, 2007. [Introduction, Chapter 3] <http://www.jstor.org/stable/j.ctt13x0m29>.

Optional:

Kuhn, Thomas S. "The Function of Measurement in Modern Physical Science." *Isis* 52, no. 2 (1961): 161–93.

Borgman, Christine L. *Big Data, Little Data, No Data - Scholarship in the Networked World*. The MIT Press, 02. <http://site.ebrary.com/lib/uwash/detail.action?docID=11006438>.

Week 7: governments, nations, nationalism, colonialism

Larkin, Brian. *Signal and Noise: Media, Infrastructure, and Urban Culture in Nigeria*. E-Duke Books Scholarly Collection. Durham: Duke University Press, 2008. [Introduction and Chapter 1]

Nye, David E. *American Technological Sublime*. Cambridge, Mass.: MIT Press, 1994. [Introduction, Chapter 1, 6]

John, Richard R. 1998. *Spreading the News: The American Postal System from Franklin to Morse*. Cambridge, Mass.: Harvard University Press. [Chapter 4: The Imagined Community]

Optional:

Anderson, Benedict R.. *Imagined Communities: Reflections on the Origin and Spread of Nationalism*, 2006.

Thatcher, Jim, David O’Sullivan, and Dillon Mahmoudi. “Data Colonialism through Accumulation by Dispossession: New Metaphors for Daily Data.” *Environment and Planning D: Society and Space* 34, no. 6 (2016): 990–1006.

Week 8: Algorithms and Platforms

Dijk, José van. *The Culture of Connectivity: A Critical History of Social Media*. Oxford ; New York: Oxford University Press, 2013. [Chapter 2]

Gillespie, Tarleton. “The Relevance of Algorithms.” In *Media Technologies: Essays on Communication, Materiality, and Society*, edited by Tarleton Gillespie, Pablo J. Boczkowski, and Kirsten A. Foot, 167–94. Cambridge, MA: MIT Press, 2014.
<http://site.ebrary.com/lib/uwash/detail.action?docID=10833872>.

Gillespie, Tarleton. “The Politics of ‘platforms.’” *New Media & Society* 12, no. 3 (2010): 347–64.

Brubaker, Jed R., and Gillian R. Hayes. “SELECT * FROM USER: Infrastructure and Socio-Technical Representation.” In *Proceedings of the ACM 2011 Conference on Computer Supported Cooperative Work*, 369–78. CSCW ’11. New York, NY, USA: ACM, 2011.

Optional:

Geiger, R. Stuart. “Bots, Bespoke, Code and the Materiality of Software Platforms.” *Information, Communication & Society* 17, no. 3 (March 16, 2014): 342–56. doi:10.1080/1369118X.2013.873069.

Day, Ronald E. *Indexing It All*. The MIT Press, 2014. <https://muse.jhu.edu/book/35158>.

Plantin, J.-C., C. Lagoze, P. N. Edwards, and C. Sandvig. “Infrastructure Studies Meet Platform Studies in the Age of Google and Facebook.” *New Media & Society*, 2016.

Week 9: Space

Lefebvre, Henri. “Space and the State.” In *State/Space*, edited by Neil Brenner, Bob Jessop, Martin Jones, and Gordon McLeod, 84–100. Blackwell Publishing, 2003.

Castells, Manuel. *The Rise of the Network Society*. New ed. Information Age Series ; v.1. Oxford: Wiley-Blackwell, 2009. [Chapter 6, 7, Conclusion]

Kitchin, Rob, and Martin Dodge. *Software Studies : Code/Space : Software and Everyday Life*. Cambridge, US: MIT Press, 2011. [Part I]

Massey, Doreen. *Space, Place, and Gender*. Minneapolis, US: University of Minnesota Press, 1994.
[Chapter 8: Space, Place, Gender]

Week 10: Time

Thompson, Edward P. "Time, Work-Discipline, and Industrial Capitalism." *Past & Present*, no. 38 (1967): 56–97.

Bartky, Ian R. "The Adoption of Standard Time." *Technology and Culture* 30, no. 1 (January 1, 1989): 25–56.

Sharma, Sarah. "Critical Time." *Communication & Critical/Cultural Studies* 10, no. 2/3 (September 2013): 312–18.

Wajcman, Judy. "Life in the Fast Lane? Towards a Sociology of Technology and Time." *The British Journal of Sociology* 59, no. 1 (March 1, 2008): 59–77. [Optional responses: Hassan, Robert. "Social Acceleration and the Network Effect: A Defence of Social 'science Fiction' and Network Determinism." *The British Journal of Sociology* 61, no. 2 (June 1, 2010): 356–74. AND Wajcman, Judy. "Further Reflections on the Sociology of Technology and Time: A Response to Hassan." *The British Journal of Sociology* 61, no. 2 (June 1, 2010): 375–81.]

Ananny, Mike. "Networked News Time." *Digital Journalism* 4, no. 4 (May 18, 2016): 414–31.

Optional:

Finn, Megan. "Information Infrastructure and Descriptions of the 1857 Fort Tejon Earthquake." *Information & Culture: A Journal of History* 48, no. 2 (2013): 194–221.

Wajcman, Judy, and Emily Rose. "Constant Connectivity: Rethinking Interruptions at Work." *Organization Studies* 32, no. 7 (July 1, 2011): 941–61. doi:10.1177/0170840611410829.

Ian R. Bartky. *Selling the True Time: Nineteenth-Century Timekeeping in America*. Stanford, Calif.: Stanford University Press, 2000.

Sharma, Sarah. *In the Meantime: Temporality and Cultural Politics*. Durham: Duke University Press, 2014.
<http://public.eblib.com/choice/publicfullrecord.aspx?p=1632040>.

Week 10: Final paper presentation and end of the year party
Prepare a short presentation about your paper for the class.