

SI 701

Doctoral Foundations Seminar

Fall 2018

Meets: Tuesdays 1-4 PM, 1265 North Quad

Instructor: Margaret Hedstrom

Office: 4443 North Quad

Office hours: Tuesdays 9-11 AM or by appointment (4443 NQ)

Email: hedstrom@umich.edu

Syllabus subject to change. Most current version always available on Canvas.

COURSE OVERVIEW

SI 701 is the required seminar for first-year doctoral students in the School of Information. It presents a distinctive collection of important ideas about the use and value of information, from psychology, information science, economics, computer science, sociology, communication studies, history, and other disciplines. It distills concepts and introduces students to bodies of literature that will be essential for further coursework at SI and for your future careers. You are beginning your doctoral studies and your researcher careers at a time when information is implicated in many of the fundamental shifts in economics, politics, the organization of societies, and culture; yet there are widely varying positions regarding the specific role of information in these changes and on the significance of these shifts for individuals, communities and society at large. We are living in a moment when the security of the basic information and communications infrastructure is in doubt, the reliability and credibility of information we consume is in question, and the key institutions for knowledge generation and dissemination, including scientific research and the free press, are under attack. At the same time, there is great optimism about the potential for theoretical knowledge combined with rich data and sophisticated analyses to solve or redress key problems in health and wellbeing, inequality, climate change, and a host of other social problems.

SI 701 is a reading-intensive discussion seminar that covers a large body of material related to data – information – technology – science – knowledge and society. One goal of this course is to provide a framework for situating your research interests in theoretical and disciplinary contexts. This will require critical reading of scholarly literature from a variety of disciplines; selecting and justifying theories, concepts and methods that might be fruitful for your research; and applying some of these concepts to research questions and issues in contemporary life and society. As the course progresses, you will be expected to compare, contrast and/or synthesize ideas from your prior experience, other courses you have taken, and material discussed earlier in the course. Additionally, we will work to develop creative, constructive, and critical engagement: the ability to identify and imagine how concepts and methods from one area may apply to others, even while rigorously analyzing ideas, methods, and results to probe for problems, errors, and alternative hypotheses or representations.

LEARNING OBJECTIVES

- Become conversant with the ideas and literatures that are foundational for the study of information. Build connections between and among ideas from the different fields that constitute the systematic study of information.
- Increase your understanding of concepts, theories, and literatures outside your own area of expertise. Use these as resources to place your own research in a large and diverse body of scholarship.
- Improve your ability to read, comprehend, and recall large bodies of diverse content. Learn various techniques to assist with reading, comprehension, and recall. Refine critical analytical and evaluative skills.
- Improve your ability to explain your research interests to others and learn to appreciate contributions from scholars and researchers outside your immediate area of interest.
- Develop the skill of presenting succinct summaries and commentaries, orally and in writing.
- Understand and practice the writing requirements for scholarly communication, including clear and succinct synthesis of prior literature, critical commentary, and crisp, compelling presentation of your own ideas.

REQUIREMENTS AND ASSIGNMENTS

Reading and Discussion: Contribute actively to all class discussions. Note: this is a seminar; not a lecture course. Your informed participation in the discussion, based on your critical assessment of all required reading, is an important element of the course (25% of your grade).

Present Synopsis of Readings: Working in pairs, prepare in advance, and present orally in class, a synopsis of the assigned readings for one class session; propose issues and questions for discussion, and lead the discussion for one week of the course. (10% of your grade)

Critical Review Essay (2): Using the assigned readings for one class in the first half of the course and one class session in the second half of the course as a starting point, write an analytical review essay about the theories, concepts, and issues related to the theme for that week. You will be expected to read more deeply into the assigned readings, incorporate works not included on the syllabus, and synthesize the research literature on your topic. (Each essay is 20% of your grade for a total of 40%)

Final Exam: Complete final take-home exam in essay form. Questions for the essay exam will be released at the end of the last class (December 11 and due at noon on Tuesday, December 18). (25% of your grade)

REQUIRED READING

You must complete all required readings and come to class prepared to discuss them. You are encouraged to read each week's materials in the order listed on the syllabus.

Books to purchase:

1. **Webster**, Frank. *Theories of the information society*. 4th Edition, Routledge, 2014. ISBN: 978-0-415-71879-0
2. **Simon**, Herbert A. *The sciences of the artificial*. 3rd Edition, MIT press, 1996. ISBN: 0-262-69191-4

3. **O'Neil**, Cathy. *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. New York: Crown Publishing, 2016. ISBN: 9780553418835 (ppb)
4. **Bowker**, Geoffrey and **Star**, Leigh. *Sorting Things Out: Classification and Its Consequences*. Cambridge, MA: MIT Press, 1999. ISBN: 9780262522953

ACADEMIC INTEGRITY

Original work: Unless otherwise specified in an assignment all submitted work must be your own, original work. Any excerpts, statements, or phrases from the work of others must be clearly identified as a quotation, and a proper citation provided. Any violation of the School's policy on Academic and Professional Integrity (stated in the Master's and Doctoral Student Handbooks) will result in serious penalties, which might range from failing an assignment, to failing a course, to being expelled from the program. Violations of academic and professional integrity will be reported to UMSI Student Affairs. Consequences impacting assignment or course grades are determined by the faculty instructor; additional sanctions may be imposed by the assistant dean for academic and student affairs.

Accommodations for Students with Disabilities: If you think you need an accommodation for a disability, please let me know at your earliest convenience. Some aspects of this course, the assignments, the in-class activities, and the way we teach may be modified to facilitate your participation and progress. As soon as you make me aware of your needs, we can work with the Office of Services for Students with Disabilities (SSD) to help us determine appropriate accommodations. SSD (734-763-3000; ssd.umich.edu/) typically recommends accommodations through a Verified Individualized Services and Accommodations (VISA) form. I will treat any information that you provide in as confidential a manner as possible.

Student Mental Health and Wellbeing: The University of Michigan is committed to advancing the mental health and wellbeing of its students, while acknowledging that a variety of issues, such as strained relationships, increased anxiety, alcohol/drug problems, and depression, directly impacts students' academic performance.

If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. For help, contact Counseling and Psychological Services (CAPS) at (734) 764-8312 and <https://caps.umich.edu/> during and after hours, on weekends and holidays or through its counselors physically located in schools on both North and Central Campus. You may also consult University Health Service (UHS) at (732) 764-8320 and <https://www.uhs.umich.edu/mentalhealthsvcs>, or for alcohol or drug concerns, see www.uhs.umich.edu/aodresources.

For a more comprehensive listing of the broad range of mental health services available on campus, please visit: <http://umich.edu/~mhealth/>

COURSE OUTLINE

Week 1 September 4: Course Overview; Core Concepts and Definitions

This session will focus on core concepts of information that define the scope of this course. We will discuss the first three chapters of Webster, *Theories of the Information Society*. This book, which we will read and discuss throughout the course, focuses on information in contemporary society and recent theories about its role in social change. Specifically, it asks the following questions: Are we undergoing a fundamental shift to an “Information Society;” and, if so, why does it matter, and how would we know? This first session will identify many of the dimensions of “the information society” (technological, economic, occupational, spatial, and cultural) and consider the difference between quantitative and qualitative change. We will also read and discuss three papers (two classics) and one recent piece on the concept of information.

READING:

Webster, Chapter 1-3

Weaver, Warren, “Recent Contributions to The Mathematical Theory of Communication,” (September 1949); originally published in Claude E. Shannon and Warren Weaver, *The Mathematical Theory of Communication*. Urbana: University of Illinois Press, 1949, pp. 1-28.

Duguid, Paul. "The Ageing of Information: From Particular to Particulate." *Journal of the History of Ideas* 76.3 (2015): 347-368.

Paul N. Edwards, *How to Read a Book* V5.0

Week 2 September 11: The Natural and the Artificial

Presenters: Warren and Alicia

In this session, we will begin our discussion of information processing and computation at the individual, organizational, and global levels. This session will lay the ground work for distinguishing natural phenomena and scientific laws from artificial (human and socially-constructed) theories and processes. We will pay particular attention to the limits of human information processing capabilities, the artifacts we create to compensate for those limitations, and the adaptive behaviors that enable resilience in organizations and societies.

READING:

Simon, Chapters 1 and 2

Wiener, Norbert (1948). *Cybernetics or Control and Communication in the Animal and the Machine*. MIT Press, (2nd edition, 1961). Introduction, pp. 1-29.

Nelson, R. R. and Winter, S. G. (1982) *An Evolutionary Theory of Economic Change*, Harvard University Press, Chapter 4, “Skills” and Chapter 5, “Organizational capabilities and behavior”

Week 3 September 18: Information and Organizations (1)

Presenters: Zhuofeng and April

This session will focus on questions of cognition, memory, and learning as critical components of human adaptation to limited capabilities in a complex environment. We will then turn to theories of organizations and organizational behavior, especially how different models of organization and different communications technologies influence the use and control over information.

READING:

Webster, Chapter 4

Simon, Chapters 3 and 4

Hollan J, E Hutchins & D Kirsh. Distributed cognition: toward a new foundation for human-computer interaction research. *ACM Transactions on Computer-Human Interaction*, 7(2), pp. 174-196, 2000.

Week 4 September 25: Information and Organizations (2)

Presenters: Minje, Mauli

We will continue the theme of information and organizations by examining additional organizational models and their assumptions about information use and information flows.

READING:

Webster, Chapter 5

Davis, Gerald F. (2016) "Organization Theory and the Dilemmas of a Post-Corporate Economy," in *How Institutions Matter! (Part B)*, Michael Lounsbury, Joel Gehman, and Royston Greenwood, eds. Emerald Publishing Limited pp 311-322;

Howison, J. and K. Crowston (2014) "Collaboration Through Superposition: How the IT Artifact as an Object of Collaboration Affords Technical Interdependence Without Organizational Interdependence." *MIS Quarterly* 38(1): 29-50.

Week 5 October 2: Networks

Presenters: Qiaoning, Xinghui

In this session, we turn to the concept to networks as a form of organization. Specifically, we will examine how social relations, organizations, economies, and societies can be characterized and analyzed as networks.

READING:

Webster, Chapter 6

Granovetter, Mark S. (1973). "The Strength of Weak Ties," *American Journal of Sociology* 78(6): 1360-1380.

Coleman, James S. (1988). "Social Capital in the Creation of Human Capital". *American Journal of Sociology* 94 (Supplement): S95-S120.

Easley, D. and Kleinberg, J. (2010) *Networks, Crowds, and Markets: Reasoning About a Highly Connected World*, Chapter 1

Castells, Manuel. "Materials for an exploratory theory of the network society1." *The British journal of sociology* 51.1 (2000): 5-24.

Week 6 October 9: Social Networks and Communication

Presenters: Jane, Aarti

This session will examine social networks, social media and online communications. We will discuss questions of credibility, self-presentation, deception and manipulation in online communities.

READING:

Webster Chapter 7

Metzger, M. J., & Flanagin, A. J. (2015). Psychological Approaches to Credibility Assessment Online. *The Handbook of the Psychology of Communication Technology*, 32, 445.

Walther, J. B., Heide, B. V. D., Artemio Ramirez, J., Burgoon, J. K., & Peña, J. (2015). Interpersonal and Hyperpersonal Dimensions of Computer-Mediated Communication. In S. Sundar (Ed.), *The Handbook of Psychology of Communication Technology*. Hoboken, NJ: Wiley-Blackwell.

Treem, J., & Leonardi, P. M. (2012). Social media use in organizations: Exploring the affordances of visibility, editability, persistence, and association. *Communication Yearbook*, 36, 143-189.
Dennis, Alan R., Fuller, Robert M. and Valacich, Joseph S., "Media, Tasks, and Communication Processes: A Theory of Media Synchronicity," *MIS Quarterly*, Vol. 32, No. 3 (Sep., 2008), pp. 575-600.

Dennis, Alan R., Fuller, Robert M. and Valacich, Joseph S., "Media, Tasks, and Communication Processes: A Theory of Media Synchronicity," *MIS Quarterly*, Vol. 32, No. 3 (Sep., 2008), pp. 575-600.

FALL STUDY BREAK OCTOBER 16 (NO CLASS)

Week 7 October 23: Design

Presenters: Josh, Hrishi

The concept of design is invoked in disciplines as disparate as evolutionary biology, organizational studies, art, and architecture. This session will focus on different conceptions of design that are relevant to analyzing and creating information-intensive processes and artefacts.

READING:

Simon, Chapters 5 and 6

Hatchuel, Armand, "Towards Design Theory and expandable rationality: the unfinished program of Herbert Simon. *Journal of Management and Governance* 5:3-4 2002.

Bardzell, Shaowen. "Feminist HCI: taking stock and outlining an agenda for design." *Proceedings of the SIGCHI conference on human factors in computing systems*. ACM, 2010.

Dourish, Paul. "Implications for design." *Proceedings of the SIGCHI conference on Human Factors in computing systems*. ACM, 2006.

Week 8 October 30: Information, Control and Transparency**Presenters: Gabriel, Woosuk**

Transparency is an important feature of markets and modern democracy. Knowing about the sources, selection, processing, and security of information allows individuals to assess its authority, accuracy, and reliability. Increasingly, information is fabricated, intentionally manipulated, and obscured for purposes of personal, political, and economic gain. In this session, we will discuss the numerous entities (from embedded algorithms, to social media platforms, to media empires) that directly and indirectly interfere with information flows.

READING:

Webster, Chapter 8

O'Neil, Cathy; *Weapons of Math Destruction*, Chapter 1, 4, 6 and 10

Hannak, A., Soeller, G., Lazer, D., Mislove, A., Wilson, C. (2014). "Measuring Price Discrimination and Steering on E-commerce Web Sites." *ACM SIGCOMM/SIGMETRICS Internet Measurement Conference (IMC '14)*.

Week 9 November 6: Governance**Presenters: Lei, Lindsay**

In this session, we will discuss different perspectives on the effectiveness of markets to satisfy the information needs of democratic societies versus the role of public institutions, regulations and government subsidies to ensure equal access to information, communications technologies and networks.

READING:

Webster Chapters 9 and 10

Abraham, Itty, and Ashish Rajadhyaksha. "State Power and Technological Citizenship in India: From the Postcolonial to the Digital Age." *East Asian Science, Technology and Society* 9.1 (2015): 65-85.

Burrell, Jenna, and Elisa Oreglia. "The myth of market price information: mobile phones and the application of economic knowledge in ICTD." *Economy and Society* 44.2 (2015): 271-292.

Anthony Giddens, Chapter II, "Problems of Action and Structure," in *The Giddens Reader*, Philip Cassell, ed. Stanford University Press, 1993: pp. 80-175

Week 10 November 13: Surveillance, Privacy and Security

Presenters: Sylvia, Kathryn

This week's readings and discussion will focus on the tensions between passive data collection, surveillance, security (personal, national, economic), and privacy in a world where states and corporations gather unprecedented volumes of data.

READING

Webster, Chapter 11

Schmitz, K. W., Teng, J. T., & Webb, K. J. (2016). Capturing the Complexity of Malleable IT Use: Adaptive Structuration Theory for Individuals. *Management Information Systems Quarterly*, 40(3), 663-686.

Nissenbaum, Helen. "A contextual approach to privacy online." *Daedalus* 140.4 (2011): 32-48.

Smith, H. Jeff, Dinev, Tamara and Xu, Heng, "Information Privacy Research: An Interdisciplinary Review," *MIS Quarterly*, Vol. 35, No. 4 (December 2011), pp. 989-1015

Week 11 November 20: Ways of Knowing

This session covers philosophical and methodological aspects of the question: how do we know what we know?

READING:

Theodore Porter, Introduction and Chapters 1, 8 and 9, *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*, Princeton University Press, 1995: pp. 1-32, 193-231.

Camerer, C. F., (2003) *Behavioral Game Theory: Experiments in Strategic Interaction*, Chapter 1, Introduction, pages 1-25.

Harrison, S., Tatar, D., & Sengers, P. (2007, April). The three paradigms of HCI. In Alt. Chi. Session at the *SIGCHI Conference on Human Factors in Computing Systems San Jose, California, USA* (pp. 1-18).

Haraway, Donna. "Situated knowledges: The science question in feminism and the privilege of partial perspective." *Feminist studies* 14.3 (1988): 575-599.

Harding, Sandra. "Postcolonial and feminist philosophies of science and technology: Convergences and dissonances." *Postcolonial Studies* 12.4 (2009): 401-421.

Week 12 November 27: Representation and Manipulation

Presenters: Rob, Deahan

Classification is an essential artifice for organizing information into categories, classes, sets, etc. that become amenable to abstraction and manipulation. This session explores the social implications of classification by examining its ubiquity and opacity.

READING:

Webster, Chapter 12

Bowker, Geoffrey and Leigh Star, *Sorting Things Out: Classification and Its Consequences*. Cambridge, MA: MIT Press, 1999. Introduction, Ch. 1-4, 6, 9-10

Week 13 December 4: Endpoints.

Ideas both shape and reflect the time when they are written. In this session, we will consider where Simon ended with complexity and how Webster deals with alternatives to “The Information Society.” Our goal is to consider temporality, persistence and change in information studies.

READING:

Simon, Chapters 7 & 8

Webster, Chapter 13.

Week 14 December 11: Summary/Wrap Up

This session will be an opportunity for you to tie loose ends in preparation for the final exam.

FINAL EXAM DUE: DECEMBER 18 AT 5:00 PM