INF 391D.12 Disciplinary Foundations for Information Science

Spring 2013 Classroom UTA 5.428, Tuesdays, noon – 3:00 pm
Instructor William Aspray
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Official Course Description:

An overview of concepts, results, and perspectives from philosophical, social science, humanistic, design, and technological disciplines that provide important underpinnings for Information Studies.

Goals

Informally, I think of this course as teaching you everything you need to know from every other academic discipline in order to succeed in a doctoral program in information studies. Of course, this is a hopeless task. There are more possible things that one might need to know than could possibly be covered in a single course. Moreover, each of you will find that you need to know different things in order to prepare for your qualifying examination and dissertation. I have selected a set of topics that cover a wide range of academic disciplines and that have direct relevance to information studies – and yet much of this material has not yet been completely mined by information studies scholars.

We will have visits from a number of our faculty and advanced graduate students to talk about some of the major concepts, theories, and ways of thinking from disciplines they are familiar with. Between these talks and our readings, presentations, and discussions, you will have at least a first exposure to many of the important disciplinary concepts that will be useful to you in your studies.

The faculty search will be going on this semester, and at least three of our candidates will be here on class day. I think it will be particularly helpful for you to meet with the candidates and attend their talks, so that you can have models of people who are successful but only a little bit advanced in their careers from where you are. Many of you will have to experience this kind of job search in the future, and I hope this exposure will help to make you more comfortable and better prepared for this right of passage.

Finally, from time to time we will talk about other issues – unrelated to our visitors – having to do with being a doctoral student or being a faculty member in a research university.
Assignments

Students must:

- Read the assigned readings carefully enough that you can participate actively and at a high intellectual level in the class discussion.

- Send two discussion questions each week concerning that week’s reading. These questions should arrive no later than 7 am on class day at bill@ischool.utexas.edu. This is your chance to shape the discussion and ensure that topics of interest to you are discussed in class.

- Participate actively, in a respectful way and at a high intellectual level, in all class discussions.

- Attend regularly the research colloquium, the faculty job talks, and the student meetings with the faculty candidates.

- Present three 30-minute class presentations, each time with a different partner. These presentations are intended to provide background and context for that week’s reading. The syllabus (below) outlines roughly what should be covered in each presentation and gives some suggestions of sources to use in preparing the presentation. I have high expectations for these presentations. You are expected to carry out substantial reading to prepare for your presentation and organize the material well. The presentation should be rich with information and insights that are useful to your fellow students, and the only reason that you will be able to cover all this material effectively is that you have worked hard on the presentation as well as on the research. I will have slightly lower expectations for your first presentation because I understand that you have to learn how to make these presentations effective, and I will give particular slack to the students who present during the second and third class meetings (Jin and Melissa, Dan and Daniel) because they volunteered to present early in the term and had not had a chance to see this statement of high expectations. After you have thought about the recommended topics and sources, I will be happy to meet with you to help guide your presentation preparation if you wish.

- Every student will distill the major findings, concepts, and approaches from each week’s reading and apply them in discussions in subsequent class meetings. The presenters will be expected to be the “resident expert” on each of the topics they present, so that the instructor or other students can call on them and ask what would that author’s take might have been on a particular issue.

Note: There will be no papers, exams, or quizzes in this course.
Academy Integrity

I take academic integrity seriously and enforce it in my classes. I follow the University of Texas policies, which can be found at http://deanofstudents.utexas.edu/sjs/acint_student.php and on webpages that are linked to from this page. If you have any questions about academic integrity, please ask me in advance of any questionable action.

Grading

Grades will be determined holistically based on your active and thoughtful participation in class, good discussion questions submitted on time each week, and the quality of research and organization and presentation in your three presentations. As long as you work hard, complete assignments on time, and practice academic integrity, I anticipate no problems with low grades.

Time Expectations Outside of Class

I expect no less than 6 quality hours per week to carry out each week's assigned reading and no less than 15 quality hours for the preparation of each of your presentations. If you are a slow reader or have distractions or are multitasking, you may need to take additional time.

Schedule (We will fill in the missing information in the table the first day of class.)

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<th>Date</th>
<th>Topic</th>
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<td>Jan 15</td>
<td>Introduction</td>
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<td>Jan 22</td>
<td>Goffman</td>
<td>Jin, Melissa</td>
<td>Philip Doty</td>
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<td>Melanie Feinberg</td>
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Readings and Presentation Assignments

Andrew Abbott, *The System of Professions* [452 pages]

Compare the book we are reading with Abbott’s *Chaos of Disciplines* and *Time Matters*. Abbott identifies himself as working in the Chicago pragmatist and ecological tradition. What does that mean? How does the ecological account of knowledge espoused by pragmatism challenge the philosophical position of idealism? In what ways are Herbert Blumer, George Herbert Mead, Alfred North Whitehead, and John Dewey intellectual grandfathers of Abbott? How does Abbott compare to or relate to some of the other leading sociologists of professions such as Paul Starr, Magali Sarfatti Larson, and Eliot Friedson? Another important sociologist who is a contemporary of Abbott and important to information studies is Paul DiMaggio, who writes on organizations, high culture, and social implications of digital technologies. How do his contributions compare to those of Abbott?

Erving Goffman, *Presentation of Self in Everyday Life* [251 pp.]

Goffman was one of the leading sociologists of the 20th century. Discuss the origins of Goffman’s concept of dramaturgy in Kenneth Burke on dramatism, as well as the influence of George Herbert Mead and Herbert Blumer on Goffman. Discuss the extension of Goffman’s work by Penelope Brown and Stephen Levinson in their politeness theory.

Donna Haraway, *Haraway Reader* [416 pages]

Donna Haraway is a feminist, Marxist, postmodern scholar interested in issues of science and other types of organized knowledge such as museum exhibits and cyborgs. In discussing her work, make sure to discuss both her book *Primate Visions* and some of her various writings about cyborgs. Compare Haraway’s writings on feminism and science to those of Evelyn Fox Keller and Sandra Herbert. Stepping back from the works of these three authors and considering feminist scholarship more generally, give an overview of the various types of feminism and how they relate to one another.

David Hess, *Alternative Pathways in Science and Industry* [344 pages]

Hess’s book is about how activism and social movements impact innovation. After spending only a small number of minutes on his bio and career, cover any two of the following four topics: (1) *The digital divide from a social, cultural, and political perspective*. Greg Downey’s spring 2009 course entitled Digital Divides and Differences (LIS 640, University of Wisconsin, Madison) has an excellent bibliography. You can find the syllabus under the teaching tab on his LIS personal web page. (2) *Innovation and sustainability*. Look at the material, including the downloadable papers at sustainabilityscience.org and also read Ram Nidumolu, C. K. Prahalad, M. R.

**Philip Johnson-Laird, How We Reason** [584 pages]

Philip Johnson-Laird is the principal originator of the notion of mental models in cognitive science, although it is important to note that a significant amount of this work was carried out in collaboration with Ruth Byrne. One good way to discuss his career is to talk about his most important collaborations: with Peter Wason in their critique of Piaget; with the famous psychologist George Miller on how people understand language; with Mark Steedman on using computer programs to model human reasoning; his work with Byrne on the mental model concept; with Keith Oatley on the theory of emotions; and with Amelia Gangemi and Francesco Mancini on the hyper emotional theory of psychological illness. Information study scholars use mental models and Brenda Dervin's theory of sense making commonly in their work. Some particular scholars who have used mental models in their information studies work include human computer interaction (e.g. well-known scholar Donald Norman; or Steven Kruger, *Don't Make Me Think*), information seeking behavior (Carol Kuhltau), or information retrieval (Nicholas Belkin). For critiques of mental models theory, see the list in the Wikipedia article on mental model (no “s”).

**Lawrence Lessig, Code 2.0** [426 pages]

Discuss the career of Lessig including his arguing in front of the Supreme Court, his Internet and society work, and his ethics and Congress work. Discuss the Berkman Center at Harvard and the similar Internet and law centers at Stanford and Yale. Talk about how this book fits with several of Lessig’s other books: *Remix; The Future of Ideas*; and *Free Culture*. Show how this work relates to some of his closest colleagues: Jonathan Zittrain’s *The Future of the Internet*; Yochai Benkler’s *The Wealth of Networks*; and William Fisher’s *Promises to Keep*. Other scholars who you might or might not mention who work in the areas of the Internet and intellectual policy, the Internet and privacy, and regulation of the Internet include Jessica Litman, Siva Vaidhyanthan, Richard Posner, Cass Sunstein, Milton Mueller, Jack Goldsmith, Tim Wu, Helen Nissenbaum, and Henry Jenkins.

**Jonas Lowgren and Erik Stolterman, Thoughtful Interaction Design** [212 pages]

This book is a thoughtful introduction to HCID (human computer interaction design). In providing background here, we will explore the connections of
HCID to closely related fields. First examine the history of HCI. A good place to start is with the article "Human Computer Interaction (HCI)" by John Carroll (2012) online from the Interaction Design Foundation. Then consider the relationship between HCI and artificial intelligence, which rests in the distinction between augmenting human intelligence and replacing it. Next consider the theoretical underpinnings of HCI. To do this, look at Lucy Suchman’s Human-Machine Reconfigurations and possibly at Paul Dourish’s Where the Action Is. Next consider assistive technology and accessible hardware. The University of Washington is a leader in assistive technology, and they have a website that is a good place to start. Next consider the relation between HCID and computer graphics/information visualization/scientific visualization. Andries van Dam and James Foley have written the authoritative book on computer graphics, and that would be a good place to start. Also look at the accounts and references in the Wikipedia articles on computer graphics (computer science), information visualization, and scientific visualization. Finally, look at the relation of HCI to design. Bill Moggridge’s Designing Interactions is a good place to start, despite the fact that it is very self-promoting of his company IDEO and his friends.

Sharon Bertsch McGrayne, *The Theory That Would Not Die* [360 pages]

Discuss the practical and philosophical differences between Bayesian and traditional frequentist statistics. Review some of the major ways of thinking/approaches in computer science such as computational thinking, data mining, visualization, the systems view of information retrieval, theory of computation, machine learning, and artificial artifacts.

Vincent Mosco, *Political Economy of Communication* [280 pages]

Vincent Mosco is a sociologist and political economist of information and communication technology. Place the discussion of the assigned class reading in the context of his two books on information work (Knowledge Workers in the Information Society, The Laboring of Communication) and his The Digital Sublime. Then place his work in the larger context of scholarship about the information society by looking at Frank Webster’s book Theories of the Information Society and by reading Webster’s more recent article (readily available online) "The Information Society Revisited".

David Nye, *Technology Matters* [304 pages]

You might focus your presentation on acquainting the students with the history of technology. This might include telling the group about the Society for the History of Technology (and any other organizations you find relevant), the journal Technology and Culture (you might do a show and tell), classic works in the history of technology (there is a web page on the SHOT site that lists some classic books), and something about the history of the history of
technology. One good place to get at this history is by looking at John Staudenmaier's *Technology's Storytellers*.

Peter Singer, *Practical Ethics* [352 pages]

Discuss the basic contributions to ethics by Aristotle, Kant, Mills, and Rawls. Discuss more recent writings, especially of Deborah Johnson, on computer and information ethics. See the online article in the *Stanford Encyclopedia of Philosophy* on computer and information ethics. Provide background material on Singer.

Yi-Fu Tuan, *Space and Place* [496 pages]

Tuan is the founder of humanist geography, which considers how humans relate to the world around them, taking into consideration cultural, social, psychological, and moral behavior. Examine his career in part through his autobiography and his published book of letters to colleagues. What influenced his career? How has he influenced subsequent generations of scholars? You might pursue this in part by tracing the work of his doctoral students such as Steve Hoelscher and Karen Till. Two of his best known concepts are topophilia (in a book of the same name) and topophobia (in his book *Landscapes of Fear*). What does any of this have to do with information studies?

Karl Weick, *Sensemaking in Organizations* [235 pages]

Weick is a leader in organizational information theory. It is a field at the intersection of organizational theory, cognitive science, and communication theory. It is a field that studies complex problems such as firefighting or operating a warship or running a large business that require cooperative thought and action. One of the major contributions of Weick was to introduce Brenda Dervin's work on sense making into organizational studies. Since Dervin's sense making appears often in information studies research, Dervin's theory should be covered in the presentation. Another of Weick's contributions was to introduce the concept of mindfulness into organizational studies. Mindfulness is closely associated with Edwin Hutchins's work on distributed cognition, which is often found in information studies and thus should also be part of this presentation. The final section of the presentation could provide further background about organizational studies or organizational communication studies. You could take various approaches but here is the outline of one possible approach: to discuss Max Weber's theory of bureaucracy, James Taylor's co-orientation theory, Alex Bavelas and network theory, Frederick Taylor and the theory of scientific management, and neoclassical organizational theory as represented in Elton Mayo's studies of the Hawthorne plant of Western Electric.

Joanne Yates, *Control Through Communication* [368 pages]
Yates is a leading scholar in the business history of information and communication technologies. The book we are reading is heavily influenced by the leading American business historian of the 20th century, Alfred DuPont Chandler. See in particular, Chandler’s The Visible Hand but also his Strategy and Structure. Compare the book we are reading with Yates’s later book on the insurance industry: Structuring the Information Age. One of the most prolific scholars in this area is James Cortada. See, for example, his Before the Computer, The Digital Hand, The Digital Flood, and his co-edited book with Chandler A Nation Transformed by Information. A good analysis of what came after Chandler is given in Naomi R. Lamoreaux, Daniel M. G. Raff, and Peter Temin, “Beyond Markets and Hierarchies: Toward a New Synthesis of American Business History,” American Historical Review 108, no. 2 (2003): 404-433. Some other important researchers in the field of business or economic history of information technology include Shane Greenstein, Steve Usselman, Jeffrey Yost, Kenneth Flamm, Richard Nelson, David Mowery, and Nathan Rosenberg. Make sure to explain the difference between business history of information technology and economic history of information technology.

Additional Reading

Here, in no particular order, are some of the authors – and in some cases their books – I considered but decided against assigning for class. If you want to continue your background disciplinary education reading at some point, these would be a good place to start.

- Karl Popper, Thomas Kuhn, and Imre Lakatos on Positivism, Logicism, and Empiricism. These are put in context in Peter Godfrey Smith’s Theory and Reality and in Michael Crotty, The Foundations of Social Research
- Grace Lees-Maffei and Rebeccas Houze, The Design History Reader [544 pages]
- Thomas Erickson and David McDonald, HCI Remixed [360 pages]
- Mark Monmonier, How to Lie with Maps
- John M. Carroll, Interfacing Thought
- Bill, Moggridge, Designing Interactions
- W.V.O. Quine, Philip Kitcher, and David Hull on naturalism in science and social science
- Emile Durkheim and Max Weber on the foundations of sociology
- Pierre Bourdieu (sociological theories of habitus, cultural capital, taste, etc.)
- Michel Foucault (especially from The Order of Things or The Archeology of Knowledge), Jacques Derrida, and Judith Butler on poststructuralism
- Edmund Husserl and Maurice Merleau-Ponty on phenomenology
- Martin Heidegger, Hans-Georg Gadamer, and Hubert Dreyfus on hermeneutics
• Christopher Alexander on design and pattern language
• Lev Vygotsky, Alexei Leontiev, and activity theory
• George Herbert Mead, William James, and John Dewey on pragmatism, social philosophy, and social interactionism; Richard Rorty on neopragmatism
• Harold Garfinkel (ethnomethodology), Harvey Sacks and Emmanuel Schegloff (conversational analysis), J. L. Austin and John Searle (philosophy of language), and discourse analysis (Elizabeth Keating)
• Sigmund Freud, Jacques Lacan, and Jurgen Habermas on psychoanalysis
• Charles Saunders Pierce, Charles Morris, and Umberto Eco on semiotics
• Ferdinand de Saussure and Claude Levi-Strauss on structuralism
• Donald Norman, The Design of Everyday Things
• Adam Smith, David Ricardo, and John Stuart Mill on classical economics
• Later economic theories: Alfred Marshall (neoclassical), Milton Friedman (Chicago School), John Meynard Keynes (Keynsian economics), Paul Davidson (post-Keynsian)
• Edward Said, Frantz Fanon, and Albert Memi on postcolonialism
• Robert Merton, Donald MacKenzie, and Bruno Latour on sociology of science
• From psychology to HCI: Stuart Card, Thomas Moran, and Allen Newell, The Psychology of Human-Computer Interaction; Allen Newell, Unified Theories of Cognition; John Carroll, Interfacing Thought
• Applied ethics: Carol Gilligan, Deborah Johnson
• Anthony Giddens and structuration theory