Disciplinary Foundations for Information Studies

Spring 2017

INF 391D.12
Tuesdays, 3-6 pm

Instructor: Dr. Tanya E. Clement
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I. 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.

II. Detailed Course Description: This course explores the disciplinary foundations of our field, including humanities, social sciences, technical, and interdisciplinary fields. Each of these units will feature three specific (inter)disciplines. Each week, we will discuss the readings and the relationship between the focal (inter)discipline and information studies. Also, each week, a subject matter expert will join us as a guest discussant for the second half of the class.

III. Learning Objectives: By the end of this course, you will be able to:
- Explain the relationship between the information field and related (inter)disciplines.
- Integrate and synthesize concepts from the information field and related fields.
- Apply theories and methods from several different (inter)disciplines to your research.

IV. Tentative Course Schedule ***This syllabus represents my current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.**

Week 1 (1/17) Introductions	
• Davis, M. S. (1971). That's Interesting! *Philosophy of Social Science*, 1(4), 309–344.	
• Booth, Wayne C., Gregory G. Colomb, and Joseph M. Williams. 2008. *The Craft of Research, Third Edition*. 3 edition. Chicago: University Of Chicago Press. [Chapter 3]	
• Buckland, Michael. "What Kind of Science Can Information Science Be?" J. Am. Soc. Inf. Sci. Technol. 63, no. 1 (January 2012): 1–7.	
Unit I: Social Sciences	
Week 2 (1/24) Work practices, work knowledge, and the organization of work	**Diane Bailey**
• Bailey, D. E., Leonardi, P. M., & Barley, S. R. (2012). The Lure of the Virtual. Organization Science, 23(5), 1485–1504.	
• Hine, C. (2006). Databases as Scientific Instruments and Their Role in the Ordering of Scientific Work. Social Studies of Science, 36(2), 269–298.	
• Zaloom, C. (2003). Ambiguous numbers: Trading technologies and interpretation in financial markets. American Ethnologist, 30(2), 258–272.	
Week 3 (1/31) Psychology	**Andrew Dillon**
• Dillon, A. Keynote address: Library and information science as a research domain: problems and prospects. Proceedings of the Sixth International Conference on Conceptions of Library and Information Science—'Featuring the Future.' IR Information Research 12.4, 2007	
• Kraut, Robert E. Applying Social Psychological Theory To The Problems Of Group Work. Chapter prepared for J. Carroll (Ed.). Theories in Human-Computer Interaction. New York: Morgan-Kaufmann Publishers (pp325-356) Prepublication version 2.6, 8/5/2002.	

• Olson, G.M., & Olson, J.S. (2003). Human-computer interaction: Psychological aspects of the human use of computing. Annual Review of Psychology, 54, 491-516. • Sweller, J. (2006). Natural information processing systems. Evolutionary Psychology, 4, 434-458.	
Week 4 (2/7) Economics	**James Howison**
• Coiera, E. (2000). Information economics and the internet. Journal of the American Medical Informatics Association, 7, 215-221. • Lerner, J., & Tirole, J. (2002). Some simple economics of open source. The Journal of Industrial Economics, 50, 197- 234. • Smith, V.K., Mansfield, C., & Klaiber, H.A. (2013). Terrorist threats, information disclosures, and consumer sovereignty. Information Economics and Policy, 25, 225-234. • Stiglitz, J.E. (2000). The contributions of the economics of information to twentieth century economics. The Quarterly Journal of Economics, 115, 1441-1478.	
Week 5 (2/14) Information Retrieval	**Yan Zhang**
• Allan, J., Croft, B., Moffat, A., Sanderson, M. (Eds). Frontiers, Challenges and Opportunities for Information Retrieval: Report from SWIRL 2012. ACM SIGIR Forum 46(1), 2012, pages 2-32. • Cool, C., & Belkin, N. (2011). Interactive information retrieval: History and background. In I. Ruthven & D. Kelly (eds.), Interactive information seeking, behaviour, and retrieval. London: Facet Publishing, 1-14. • Oard, D.W. (2009). A whirlwind tour of automated language processing for the humanities and social sciences. In Promoting Digital Scholarship: Formulating Research Challenges in the Humanities, Social Sciences, and Computation, Council on Library and Information Resources, pp. 34-42. • Zhang, Y., & Fu, W.T. (2011). Designing consumer health information systems: What do user-generated questions tell us? HCI International 2011 - Thematic Area: Augmented Cognition. Lecture Notes in Artificial Intelligence 6780, pp.536-545. *Optional:* • Zhang, Y. (2008). Undergraduate students' mental models of the web as an information retrieval system. Journal of the American Society for Information Science and Technology, 59, 2087-2098.	
Week 6 (2/21) Science and Technology Studies	**Ken Fleischman**
• Edwards, P.N., Mayernik, M.S., Batcheller, A.L., Bowker, G.C., & Borgman, C.L. (2011). Science friction: Data, metadata, and collaboration. Social Studies of Science, 41, 667-690. • Martin, B. (2015). Censorship and free speech in scientific controversies. Science and Public Policy, 42, 377-386. • Star, S.L. (2010). This is not a boundary object: Reflections on the origin of a concept. Science, Technology, and Human Values, 35, 601-617. • Woolgar, S. (1991). The turn to technology in social studies of science. Science, Technology, and Human Values, 16, 20-50.	
2/26	**Research Paper Proposal Due**
2/28 No class, instructor at conference	
Week 7 (3/7) Data Studies	**Amelia Acker**
• Iliadis, Andrew, and Federica Russo. "Critical data studies: An introduction." Big Data & Society 3.2 (2016). • Acker, Amelia. "Toward a Hermeneutics of Data." IEEE Annals of the History of Computing 37.3 (2015): 70-75. • Hogan, Mél. "Data flows and water woes: The Utah Data Center." Big Data & Society 2.2 (2015).	
3/14	**Spring Break**
Unit II: Technical Fields	

Week 8 (3/21) Machine Learning	Danna Gurari

- Batrinca, B., & Treleaven, P.C. (2014). Social media analytics: A survey of techniques, tools, and platforms. AI and Society, 30, 89-116.
- Ekbia, H.R. (2010). Fifty years of research in artificial intelligence. Annual Review of Information Science and Technology, 44, 201-242.
- Paul, M.J., White, R.W., Horvitz, E. (2015). Diagnoses, Decisions, and Outcomes: Web Search as Decision Support for Cancer. WWW 2015, May 18–22, 2015, Florence, Italy. ACM 978-1-4503-3469-3/15/05.
- Wallace, B.C., Laws, M.B., Small, K., Wilson, I.B., & Trikalinos, T.A. (2014). Automatically annotating topics in transcripts of patient-provider interactions via machine learning. Medical Decision Making, 34, 503-512.

3/24		Paper Outline Due

Week 9 (3/28) Human Computation Crowdsourcing	Matt Lease

- Alexander Quinn and Benjamin B. Bederson. Human computation: a survey and taxonomy of a growing field. Proceedings of the SIGCHI Conference on Human Factors in Computing Systems. ACM, 2011.
- Aniket Kittur, Jeffrey V. Nickerson, Michael Bernstein, Elizabeth Gerber, Aaron Shaw, John Zimmerman, Matthew Lease, and John Horton. The Future of Crowd Work. In Proceedings of the 2013 conference on Computer supported cooperative work, pp. 1301-1318. ACM, 2013.
- Soylent: A Word Processor with a Crowd Inside
- Bernstein, M. et al., UIST 2010. Best Student Paper award. Reprinted in Communications of the ACM, August 2015.

Optional Reference:

- Edith Law and Luis von Ahn. Human computation. Synthesis Lectures on Artificial Intelligence and Machine Learning 5, no. 3 (2011): 1-121.
- Readings from Fall 2015 Human Computation and Crowdsourcing class (to be offered again Fall 2017)
- Lease, Matt. • Talk: The Rise of Crowd Computing (SxSW, March 11, 2016, slides).

Week 10 (4/4) Human- Computer Interaction	

- Bias, R.G., Marty, P.F., & Douglas, I. (2012). Usability/user- centered design in the iSchools: Justifying a teaching philosophy. Journal of Education in Library and Information Science, 53, 274-289.
- Friedman, B., Kahn, P. H., Jr., & Borning, A. (2006). Value sensitive design and information systems. In P. Zhang and D. Galletta (eds.), Human-Computer Interaction in Management Information Systems: Foundations. Armonk, NY: M.E. Sharpe, 348-372.
- Gerlach, J.H., & Kuo, F.-Y. (1991). Understanding human- computer interaction for information systems design. MIS Quarterly, 15, 527-549.
- Lopatovska, I., & Arapakis, I. (2011). Theories, methods, and current research on emotions in library and information science, information retrieval, and human-computer interaction. Information Processing and Management, 47, 575-592.

Unit III: The Humanities

Week 11 (4/11) Philosophy	Philip Doty

- Floridi, L. (2002). What is the philosophy of information? Metaphilosophy, 33, 123-145.
- Furner, Jonathan. (2010). Philosophy and information studies. In Blaise Cronin (Ed.), Annual review of information science and technology (Vol. 44, pp. 161-200). Medford, NJ: Information Today.
- Gabriels, Katleen. (2016). "I Keep a Close Watch on this Child of Mine": A Moral Critique of Other-Tracking Apps. Ethics and Information Technology, 18(3), 175-184.
- Mai, Jens-Erik. (2013). The quality and qualities of information. Journal of the American Society for Information Science and Technology, 64(4), 675-688.

4/14		Paper Rough Draft Due

Week 12 (4/18) History	Ciaran Trace

- Aspray, W. (1999). Command and control, documentation, and library science: The origins of Information Science at the University of Pittsburgh. IEEE Annals of the History of Computing, 21, 4-20.
- Cortada, J.W. (2012). Shaping information history as an intellectual discipline. Information and Culture, 47, 119-144.
- Galloway, P. (2014). From archival management to archival enterprise to the information domain: David Gracy and the Development of Archival Education at the University of Texas. Information and Culture, 49, 3-33.
- Pawley, C. (2005). History in the library and information science curriculum: Outline of a debate. Libraries and Culture, 40, 223-238.

Week 13 (4/25) Digital Humanities

- Alexander, Kohlman piece in VAST.
- Witmore, Michael. 2016. "Latour, the Digital Humanities, and the Divided Kingdom of Knowledge." New Literary History 47 (2): 353–75.
- Berry, D.M. (2011). The computational turn: Thinking about the digital humanities. Culture Machine, 11, 1-22.
- Savage, M. (2013). The "Social Life of Methods": A Critical Introduction. Theory, Culture & Society, 30(4), 3–21.
- Liu, Alan. (2013). "The Meaning of the Digital Humanities." PMLA 128.2, 409–423.

Week 14 (5/2)	Presentations Due
5/9	Final Paper Due

V. Course Requirements

1. **Class attendance and participation policy**
   (a) Because the vast majority of the learning in this class will occur within the classroom, you are required to attend class regularly. Attendance will be taken during each class period. Absences will only be excused in situations following university policy (illness, religious holy days, participation in University activities at the request of university authorities, and compelling absences beyond your control) with proper documentation and timely notification (prior to class for non-emergencies). Excessive tardiness may be considered as an unexcused absence except in situations following university policy.

   (b) Class participation is a critical element of this course. The effectiveness of the course will be significantly impacted by the quality of your participation. Class participation is not merely attendance, but rather factors in your overall contributions to the collaborative learning environment, based on both the quantity and quality of your interactions in all aspects of the course. Discussion of class participation with the instructor is encouraged in order to ensure that you are making the most of the classroom experience and the accompanying opportunities for learning. You are expected to participate in all aspects of class discussion. You should come to class prepared to discuss the required readings, as well as your perspectives on these readings. You should strive for balance in your contributions, and your participation will not be based on who speaks the loudest or the longest, but on consistent participation of significant quantity and, most importantly, quality.

2. **Course Readings/Materials**

   (a) All course readings are available on the course Canvas site
   (b) Please make sure to complete all readings before coming to class
   (c) Please come to class ready to discuss the readings, including questions for discussion.

3. **Discussion Posts**
   For twelve weeks of the semester, you are expected to read the material carefully and post a reaction that will help provoke thoughtful class discussions. For each reading, prepare the following:
   - A concise summary of the paper based on the 'worksheet' at the end of Booth et al. (Topic/Question/Significance formula): "I am studying ... / because I want to know ... / In order to help my readers ..."
   - An analysis of why the paper is interesting, in the sense that Davis (1971) defines "Interesting". You should answer this in terms of its interestingness to it's own discourse and to the wider discourse of Information Studies. If you do not think the paper is interesting to either of these discourses explain why.
   - A free form section describing two reactions you had to the paper that you think would be appropriate for discussion. Explain why you think your reaction is appropriate for discussion.

   In total, your post will be the same approximate length as 2-3 pages of a single-lined Word Document.

4. **Research Paper**
   Throughout the semester, you will develop a research paper that explores a conceptual problem across the literature of two distinct (inter)disciplines that correlate with Information Studies. "In academic research, a *conceptual* problem arises when we simply do not understand something about the world as well as we would like. We solve a conceptual problem not by doing something to change the world but by answering a question that helps us understand it better" (Booth, et al., p. 53). The research paper, much like the iSchool qualifying paper, is intended to provide an original, substantive analysis of the research and theory in critical, *interdisciplinary* research arenas that can help you better understand and address your conceptual problem.

Throughout the semester, you will develop a research paper that explores a conceptual problem and a research question that addresses a gap across two distinct (inter)disciplines in concert with Information Studies. "In academic research, a conceptual problem arises when we simply do not understand something about the world as well as we would like. We solve a conceptual problem not by doing something to change the world but by answering a question that helps us understand it better" (Booth, et al., p. 53). Your audience is Information Studies professionals, but you will want your research to be of interest to scholars in the (inter)disciplines as well. Your ultimate goal is to design an interesting research question that addresses a problem and reflects a gap in current research.

You should select the conceptual problem and the disciplines from at least two of the three units: humanities, social sciences, technical. You can either use (inter)disciplines from the course weeks or choose different (inter)disciplines in consultation with the instructor. For example, if you chose to write a research paper on a conceptual problem that is based in human values, you could select psychology (social sciences) and human-computer interaction (technical) and philosophy (humanities). Your conceptual problem will address these (inter)disciplines and the significance of the problem in the context of Information Studies.

Paper Proposal: Please describe, in 500 words, the conceptual problem and a research question at the root of your proposed research paper.

Introduce the problem and the question using the Topic/Question/Significance formula (Booth et al.'s, Chapters 3 and 4). "Ask a question whose answer solves a problem that you can convince readers to care about" (Booth. et. al, 35). Describe why the conceptual problem and the research question are interesting in terms of the discourse of the two (inter)disciplinary lenses through which you will examine this concept and in the wider discourse of Information Studies, in the sense that Davis (1971) defines "interesting". Finally, you should include a plan for how you will conduct the research you will be doing outside of Information Studies including what books, databases, articles, journals, and people you will rely on to learn more about the topic. This plan will include, beyond the 500 words, 15 sources for further study and why those sources will be useful to you.

Paper Outline: Please provide the following:
- an introduction to the selected conceptual problem in one paragraph;
- an annotated bibliography of relevant literature with at least five sources for each field (15 total) that you will cover for each of the two interdisciplinary fields as well as in information studies; each annotation should be one to two sentences that provides a sketch or brief summary of only the key points in only those sources that are most relevant to your argument;
- a one- to two-page synthesis that integrates the various fields' assumptions about and approaches to the conceptual problem. The recommended format for the synthesis is either a bulleted list, with 3-6 bullets for each of three sections, or paragraph-length descriptions of each of the three sections.
- After your summary of sources, rephrase your research question as a statement about a flaw or gap that you see in the literature you have engaged.

Paper Rough Draft: You may choose to what extent and in what ways you develop the paper; for example, you can provide half of your final paper or the complete paper with each section half written. However, for all omitted sections, please provide a description that is further developed from the outline. You may also use this as an opportunity to provide a complete draft of the paper, but this is not required. The rough draft length should be 1,500-5,000 words. A bibliography must also be included.

Final Presentation: Please prepare a 20-30 minute presentation of your paper that explains the goals of the paper, how you developed the paper, and the final product. Please send PowerPoint slides to the instructor prior to the final class meeting.

Final Paper: Your final paper should incorporate feedback from all previous stages of the paper development. Your paper should be complete, coherent, and easy to read. Please make sure to proofread your paper thoroughly prior to submission. The final paper length should be 3,000-5,000 words.

VI. Grading Procedures
Grades will be based on:
　　Discussion Posts (30%)
　　Research Paper (70%)
　　　　Paper Proposal: (5%)
　　　　Paper Outline: (15%)
　　　　Paper Rough Draft: (15%)
　　　　Final Paper: (25%)
　　　　Final Presentation: (5%)

Grading Scale:

		B	87-89	C	77-79	D	67-69		
A	93-100	B	83-86	C	73-76	D	63-66	F	0-
A	90-92	B	80-82	C	70-72	D-	60-62		

Late Assignment Policy
All assignments are due as noted in the course schedule. All assignments must be submitted via Canvas unless otherwise noted. Late assignments will only be excused in situations following university policy (illness, religious holy days, etc.) with proper documentation and timely notification (prior to the deadline for non-emergencies). In all other cases, assignments received after the deadline will be penalized 10% per 24- hour period. If you turn in an assignment (without prior authorization or extreme emergency circumstances) even one minute late, you will have an automatic deduction of 10% prior to grading of the assignment; if you are five days late, even an otherwise perfect assignment will only receive half-credit; and if you are ten days late, your assignment will not be graded and will not receive any credit.

VII. University Policies

Religious holy days: A student who misses classes or other required activities, including examinations, for the observance of a religious holy day should inform the instructor as far in advance of the absence as possible, so that arrangements can be made to complete an assignment within a reasonable time after the absence.

Use of E-mail for Official Correspondence: All students should become familiar with the University's official e-mail student notification policy. It is the student's responsibility to keep the University informed as to changes in his or her e-mail address. Students are expected to check e-mail on a frequent and regular basis in order to stay current with University-related communications, recognizing that certain communications may be time-critical. It is recommended that e-mail be checked daily, but at a minimum, twice per week. The complete text of this policy and instructions for updating your e-mail address are available at **http://www.utexas.edu/its/help/utmail/1564**

Documented Disability Statement: You will need to provide documentation to the Dean of Student's Office so the most appropriate accommodations can be determined. Specialized services are available on campus through Services for Students with Disabilities (SSB 4.104, 471-6259). Any student who requires special accommodations must obtain a letter that documents the disability from the Services for Students with Disabilities area of the Division of Diversity and Community Engagement (471-6259 voice or 471-4641 TTY for users who are deaf or hard of hearing). Present the letter to the professor at the beginning of the semester so that needed accommodations can be discussed. The student should remind the professor of any testing accommodations no later than five business days before an exam. For more information, visit http://www.utexas.edu/diversity/ddce/ssd/

Behavior Concerns Advice Line (BCAL): If you are worried about someone who is acting differently, you may use the Behavior Concerns Advice Line to discuss by phone your concerns about another individual's behavior. This service is provided through a partnership among the Office of the Dean of Students, the Counseling and Mental Health Center (CMHC), the Employee Assistance Program (EAP), and The University of Texas Police Department (UTPD). Call 512-232-5050 or visit http://www.utexas.edu/safety/bcal.

Emergency Evacuation Policy: Occupants of buildings on the UT Austin campus are required to evacuate and assemble outside when a fire alarm is activated or an announcement is made. Please be aware of the following policies regarding evacuation:

- Familiarize yourself with all exit doors of the classroom and the building. Remember that the nearest exit door may not be the one you used when you entered the building.
- If you require assistance to evacuate, inform me in writing during the first week of class.
- In the event of an evacuation, follow my instructions or those of class instructors.

Do not re-enter a building unless you are given instructions by the Austin Fire Department, the UT Austin Police Department, or the Fire Prevention Services office.

Policy on Scholastic Dishonesty: Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced. For further information, please visit the Student Judicial Services web site at http://deanofstudents.utexas.edu/sjs/

University of Texas Core Values and Honor Code: The core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the university is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community. As a student of the University of Texas at Austin, I shall abide by πthe core values of the University and uphold academic integrity.