INF 380E, Perspectives on Information
Fall 2014

Instructor: Melanie Feinberg
Class location: UTA 1.208
Date and time: Date and time: Thursdays, 12-3 p.m.

Instructor information

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E-mail is the most reliable means of contact. I do my best to answer e-mail within a day or two of receipt. If you do not receive a response after a few days, please follow up. It is always helpful if your e-mail includes a targeted subject line that begins with "INF 380E."

The catalog description for this course reads as follows:

Perspectives on Information. A multi-disciplinary and historical examination of information as a primary and foundational concept. Contrasts key literature from information studies with perspectives from other fields.

Learning objectives

The broad conceptual foundation provided by this course will enable you to:
- Appreciate the multifaceted extent of information as a concept, as it manifests in a variety of fields.
- Identify the role of information studies, broadly construed, and how it fits in this kaleidescope.
- Participate in debates regarding current and evolving information forms, tools and technologies, institutions, and policies.
- Envision future directions for information studies and the information professions.
- In subsequent courses, explore conceptual connections between topics that may initially seem disparate, increasing the cohesion of the overall educational experience.

Students with disabilities

Students with disabilities may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities, 512-471-6259. (Or see their Web site.)

Academic integrity

I follow University of Texas standards for academic integrity, as documented on the Dean of Students' Web site and in associated materials. It is very important that academic work is conducted according to accepted ethical standards. If you uncertain whether an action is in keeping with academic integrity standards, please consult with me before undertaking it.

Assignments

There are four graded components to this course:
- Participation (10 points).
- Project 1: Reflective response essays on course readings (30 points), due on six Thursdays of your choosing throughout the semester, at noon. Post response essays on weekly discussion boards available in Canvas.
- Project 2: Supermarket shuffle (30 points), due in class (by 3 p.m.) on October 16. *Bring a printed copy to class.*
- Project 3: Futurama (30 points), due in class (by 3 p.m.) on December 4. *Bring a printed copy to class.*

When crafting assignments, follow the instructions carefully, and pay special attention to the grading criteria. Assignments are graded based on the criteria listed in this syllabus; the number of points available for each assignment is divided equally between the defined criteria. There will be no surprises.

Late policy and extensions

Late assignments are *not* acceptable, although extensions are possible *if negotiated with the instructor in advance.*

Lacking prior dispensation, for each day that an assignment is late, ten percent of the possible points will be deducted from the score. Example: if the final assignment, Futurama, worth 30 points, is one day late, the maximum number of points for the late assignment is 27. If the assignment were 2 days late, your penalty would be 6 points. An assignment is one day late when the time it is due is passed, and it continues to be one day late until 24 hours later (that is, if an assignment is due at 3, it is late at 3:01 p.m., and it is one day late until 3 p.m. the next day). Students who anticipate difficulties with completing assignments on time should consult with the instructor as soon as possible so that alternate solutions can be discussed.

Citation policy and paper presentation details

For all written assignments, you *do not* need to provide a references list for readings that are included on the course syllabus. You merely need to make your references clear in your writing (e.g., "according to Lakoff's notion of idealized cognitive models," or "if we follow Ereshevsky and think about what constitutes a species concept for ketchup" with page numbers for direct quotations).

For the two formal papers (projects 2 and 3), if you include references to material that was *not* assigned in class, you *do* need provide appropriate citations. You may adopt any reasonable citation style, as long as you cite references as appropriate for scholarly work (note that a URL is not in itself a standard citation format).

You may select whatever font, font size, margin, spacing, and other options that you like, as long as your paper is professionally presented. I will not actually count the words in your paper; directions about length are guidelines only.

Participation
Class participation is a vital, mandatory component of the course. It is everyone's responsibility to contribute to our ongoing conversations.

I expect everyone to come to class having read the required material, prepared to critically enage the concepts. It is your responsibility to ask questions regarding concepts that you don't understand. Asking questions is an excellent form of participation. No questions are "dumb." (But note that it is my responsibility to challenge you, so be prepared to defend your positions. Also note that I am especially thrilled when people disagree with me and demonstrate my utter wrongness. Really! I love it! I welcome your demonstrating my utter wrongness at any time.)

Three sessions in the semester are designated as "discussion-focused." It is especially important to be prepared and ready to participate on these days. We will begin each discussion-focused class by addressing your questions from the assembled readings; this is an opportunity for you to direct the attentions of your colleagues towards issues of particular interest and concern for you.

I do not have an attendance policy, so there is no need to "make up" anything should you miss a session. However, excessive absences will of necessity affect participation.

Project 1: Response essays on course readings
During six weeks throughout the semester, you will post a brief response essay (two to three paragraphs) on our that week's Discussion board in Canvas. These essays are an opportunity for you to grapple with some of the complex issues raised in the readings and synthesize concepts across class sessions. The combined essays (and responses to them) will function as an ongoing course blog.

You can only submit one essay per week for this assignment. But otherwise, you can split up the posts as you like: do them all in the first six weeks, or wait until the end, or scatter them. Your response essays will be counted on six Thursdays throughout the semester, at noon. *(Note that you can submit essays at any time during the week.* Each module's discussion area will close on Thursday at noon, when the essays will be counted. But you can post at any time: Thursday after class, Friday, whenever. Your essay will merely need to be posted in the discussion area for next week's module.)

Your essay should identify a question that you think would engage your classmates in thought-provoking and generative discussion. This question should precede your essay when you post it. The substance of your essay should engage the ideas in a reading or readings that were most *significant* for you over the course of the week. Significant here could mean most frustrating, most mind-blowing, most surprising, most difficult...whatever you keep thinking about, for whatever reason. (Essays that address readings from multiple sessions are especially encouraged.) Successful essays engage the broader ideas and concepts in a reading, as opposed to the meaning of a single paragraph, irritation with the author's lugubrious writing style, and so on.

The ultimate goal for your essay should be facilitate a productive, ongoing conversation with your colleagues about course topics and themes. Along these lines, an excellent essay will formulate some sort of position or hypothesis on the question that you ask, instead of merely asking more and more questions. (A well-reasoned opinion or insight propels discussion toward new directions, as others consider and react to it, and then adapt or refine their own positions.)

It's perfectly okay if you didn't understand the reading that you write about. However, use the essay to engage with the roots of your confusion, rather than to vent about it. Explain to us what you think the reading was trying to say, or why it's worthless (if that's what you think).

Examples of questions you might pose are:
- If biologists don't know what a species is, as Ereshevsky claims, then how do library catalogers know what the subject of a book is?
- How is the notion of a work different from that of a record, and how does digitization affect both concepts?
- How have ideas of information retrieval changed since the Cranfield tests? Is retrieval still at the core of information studies?
- Why the hell did we read (whatever) for this class? How can (whatever) possibly relate to my intended professional goals? (Often an excellent question to ask yourself...)

It is often a good strategy to make reference to your professional experiences or other coursework in your essays, but make sure your post is grounded in some element of the readings as well.

An example essay is posted to the first weekly discussion board, for Module 2.

Responses to others' posts are encouraged and will contribute to your participation grade.

You will receive feedback on your first response essay, but not on subsequent ones, unless your submission is not sufficient in depth and will receive less than full points.

Grading criteria
A successful response essay will exhibit the following characteristics:
- Directly refers to material (concepts, themes, examples) from at least one of the course readings.
- Asks a robust question that serves to inspire continued discussion.
- Formulates a position on the question to invite further comment and conversation.

Project 2: Supermarket shuffle
In the world, our perception of information is conditioned by innumerable factors, including our physical embodiment, human cognition, language, culture, goals and actions, and so on. In this project, we will examine how information systems both reflect and shape our interpretation of information, through an example we are all familiar with: the supermarket. By comparing the similarities and differences between several instances of supermarkets, we can get a sense of how information systems both respond to and suggest interpretive frames that contribute to "the

information" of their contents, or how the complexity of humanity gets all mixed up with the ketchup and salsa (not to mention the Sriracha).

Your mission, then, is to compare the structure of at least three supermarkets and to explore how that structure affects "the information" of individual items. In selecting your markets, choose from each of the following three categories:

- A mass-market chain supermarket, such as HEB or Randalls.
- A supermarket oriented toward "finer foods" or organic foods, such as Whole Foods, Central Market, or Wheatsville.
- A supermarket oriented toward a particular culture, such as the MT Supermarket or Hong Kong Supermarket (East Asian), MGM Foods or Shahi Foods (South Asian), or La Michoacana or Fiesta (Latino).

You will essentially be "reading" each supermarket to determine what it says about the items you choose to investigate, or how it makes its items into information.

The supermarket is AN EXAMPLE of a common and yet complex and richly expressive information system. Ultimately, of course, this project IS NOT REALLY ABOUT SUPERMARKETS BUT ABOUT HOW INFORMATION SYSTEMS MAKE THEIR CONTENTS INTO INFORMATION. You could apply the mode of analysis that you bring to bear here to a library or archive, or to any sort of collection or database, physical or digital. The supermarket is merely a concrete, everyday, and relatively tractable example. Do not lose sight of the overall goal. If you think this project is about supermarkets, you will be doing it wrong.

Deliverables
In a paper of approximately 2,500 to 3,000 words (about eight to ten pages), you will explore how "the supermarket" as a system makes use of physical, cognitive, cultural, social, and economic infrastructure in its own organization—how its categories are defined, what motivates internal structure in its categories, how its categories are related, and so on—and how the supermarket system's synthesis of these infrastructure elements itself then works to condition perception of its contents. To do this incisively in such a short piece of work, you will need formulate a fairly narrow focus, looking at one or maybe two categories of items (produce, gluten-free, pasta) and tracing several examples through the different markets you investigate (bean-thread noodles, mangoes, yogurt).

Note that we're *not* interested here in how easy or difficult it is for you to find the salt; we're interested in what it means that the salt is in a particular place (or multiple places), with particular relations to its neighbors, as opposed to somewhere else, with different neighbors. We're interested in *how the supermarket makes the salt inform differently* in different instances.

We're also not interested in *why* the supermarket might be making its choices in placing and relating the salt (marketing goals and so forth). We're just interested in how putting the salt in one place instead of another gives it a certain meaning. You can think of this exercise as similar to reading three different poems and analyzing what they say about death. You're reading three supermarkets and seeing what they say about tortilla chips and salsa or "exotic" fruits or tofu—and in turn, what THAT says about assimilation and commodification of culture, or the social status of fruits and vegetables, or the cultural practice of vegetarianism.

Your paper should synthesize the elements of your investigation to present a coherent thesis about the supermarket system and its reflection of, and contribution to, elements of information perception. For instance, you might suggest that differences in the ways that your markets conceptualize "healthy" foods reveal class-based and cultural distinctions that result in different interpretations of this category. Or you might connect different interpretations of chips and salsa with alternate models of "culture" and "diversity."

Grading criteria
A successful assignment will exhibit the following characteristics:

- Presents a coherent thesis that incisively demonstrates how the supermarket as a system participates in the perception of information from its data points (the items that it carries). (Note: This is the most difficult part.)
- Uses concrete examples to provide evidence for the thesis.

- Applies concepts from course readings and class sessions to further the analysis.
- Appropriately considers one supermarket from each of the three categories.
- Adheres to professional writing standards: is logically structured and organized, is clearly and concisely written, adopts a professional, scholarly tone, and uses correct grammar, spelling, and punctuation.

Project 3: Futurama
Or, you decide
In this final project, you will use what you've learned throughout the course to address an area of current debate in the information field. You may select one of the questions listed below or propose your own question.

- In 2013, revelations of National Security Administration (NSA) surveillance activities focused on communications metadata called into question the always-tenuous distinction between metadata and data, or description and item. What is the status of metadata as compared to data, or descriptions as compared to items? Are you, as information professionals, for example, producing "data" when you define, select, or create "metadata"? When scientists capture "data" that reflect one aspect of a phenomenon (like the amount of energy produced by a star) are they creating "metadata" about that phenomenon? Is it ever possible to "provide" data (or metadata) without in some sense creating it, and how does your answer affect your idea of what information professionals do?
- In the readings for the first week of class, Luciano Floridi and Geoffrey Nunberg describe "information" in quite different ways. For Nunberg, information is a historical concept whose definition changes over time and in use, while for Floridi, information seems more universal, in that it has certain categories and properties that maybe aren't affected by history. Similarly, historical context is an integral part of the archival concept of record, while it does not seem as overtly connected to the information structures in an access-oriented environment like a library. What role does history, and time, play in the creation, maintenance, and use of information structures? (This might be especially interesting to ponder in the context of aggregations, such as the sort enabled by linked data.)
- What is the relationship between "information" and its material basis, and how does this affect the design, maintenance, and use of information systems? Models like FRBR try to separate the "ideational content" of a document from its expression, and we certainly want to think that "data" means the same whether it is in a spreadsheet or in a database. Indeed, part of Paul Otlet's vision, which we can see also in the Semantic Web of linked data, is a web of aggregated assertions independent of format, syntax, encoding, medium. But some of our readings talk very specifically about material properties, such as McDonough and colleagues' investigation of the computer game Adventure and the ability of FRBR to express relationships between its versions, or Lemieux's discussion of preferences for different modalities (such as oral information) as bearing upon the recordkeeping practices in Jamaican banks. You can also see the embeddedness of information in its material of representation in the Western Apache notions of place as described by Basso. How does material matter, and when does it matter?

Note that each question has extensive leeway in terms of how you might approach and focus it.

If you would prefer to develop your own question, you must propose your topic to me no later than **5 p.m. on Thursday, November 6.**

Deliverables
You will address one of these questions, or a question of your own devising, in a paper of approximately 2,500 to 3,500 words (about 10 to 12 pages). In your paper, do not merely ask endless chains of questions, but formulate an answer: articulate, provide evidence for, and defend a proposal for what should happen. While you may acknowledge some of the issues that might complicate implementation of your proposal, do not let skepticism about "reality" get in the way of an innovative, compelling idea. Write as if you really have the future in your hands. Be bold, as our dean says (in an informed, reasoned way).

Grading criteria
A successful assignment will exhibit the following characteristics:
- Presents a coherent thesis that proposes a creative, reflective answer to the selected question.

- Applies concepts from course readings and class sessions to provide evidence for the thesis. (There is no need to incorporate outside readings, although you may if you wish.)
- Defends the proposal against potential objections.
- Adheres to professional writing standards: is logically structured and organized, is clearly and concisely written, adopts a professional, scholarly tone, and uses correct grammar, spelling, and punctuation.

Grading

Seriously, just don't worry about your grades.
But if you must think about them, I will use the following schedule in calculating final grades:

A = 95-100	A- = 90-94	B+ = 84-89
B = 79-83	B- = 74-78	C+ = 69-73
C = 60-68	F = <60	

Course schedule

Note: Readings are subject to change. Announcements about changes will be made in class; however, please continue to check the Web site for up-to-date schedule information.

Optional readings are exactly that. This extra material provides some additional nuance to the week's topics for those with time and interest.

Date	Theme	Assignments	Readings
Week 1: August 28	Information, data, knowledge		Floridi, ch. 2-4 (pp. 15-59) Nunberg, 1996
Week 2: September 4	Information, language, and cognition		Lakoff, Ch. 1-4 (pp. 5-76) Winograd and Flores, Ch. 5 (pp 54-69) Clark, Ch 10-11 plus epilogue (pp. 193-227) *Optional* Merleau-Ponty, Ch. 5, Eye and Mind (pp. 159-190)
Week 3: September 11	Information as interpretation of natural phenomena		Dupre, 2005 Ereshevsky, Ch. 2 and 4-5 (pp. 50-80 and pp. 129-193)
Week 4: September 18	Information as collective memory Discussion-focused class: be well-rested and alert! We will begin by addressing your questions regarding the week's readings.		Zerubavel, Ch. 2 Basso, Ch. 2 Orr, Ch. 6-8 Watson, Chambers, and the Yolngu community at Yirrkala (Exhibits 1 and 4)

Date	Theme	Assignments	Readings
			Optional Basso, Ch. 4
Week 5: September 25	Information as recorded intellectual creation (the work)		Buckland, 1997 Williams and Abbott, 2009 IFLA (Read about Group 1 entities only: pages 13-14, 17-24, 31-49) McDonough, et al, 2010 Tanselle, Ch. 2 *Optional* McGann, Ch. 5
Week 6: October 2	Information as evidence (the record)		Gilliland, 2000 Macneil Lemieux Cvetkovich, Ch. 7 *Optional* Bearman and Lytle
Week 7: October 9	Information represented by information: description (metadata) Discussion-focused class: be well-rested and alert! We will begin by addressing your questions regarding the week's readings.		Wilson, Ch. 2 Gilliland Millerand and Bowker Nunberg, 2009 Zuckerman *Optional* Duval, et al
Week 8: October 16	Information structures: computing, algorithms, and abstraction; data structures	Project 2, Supermarket Shuffle, due in class.	Brookshear, selections from Ch. 0, Ch. 5, and Ch. 6 Wing Dourish Wardrip-Fruin

Date	Theme	Assignments	Readings
Week 9: October 23	Information structures: collections Discussion-focused class: be well-rested and alert! We will begin by addressing your questions regarding the week's readings.	If you haven't started posting response essays, you must begin by noon today to avoid writing an essay during the week of Thanksgiving.	Venn Lee Clifford, Ch. 10 Kennedy; Smith Lynch *Optional* King, Ch. 4-7. pp. 79-163. NISO, 2007
Week 10: October 30	Information structures: databases	If you haven't started posting response essays, you must begin by noon today AND post over Thanksgiving week in order to complete all six.	Bagui Brookshear, Ch. 9, p. 383-424 Manovich, pp. 213-244 *Optional* Bogost, Ch. 1 Chen
Week 11 November 6	*Melanie at ASIS&T conference in Seattle.* *No class.*	If you want to pursue your own Futurama question, you must propose your topic to me (via e-mail) by 5 p.m.	Read ahead for next week and catch up on previous weeks. Start thinking about your Futurama project in a concrete and real way. Yes!
Week 12: November 13	Information structures: search		Croft, Ch. 1 Cleverdon Saracevic Segal; Lincoln; Hesser *Optional* Manning, Raghvan, and Schutze, Ch. 1, Ch. 6, Ch. 11
Week 13: November 20	Information structures: networks		Rayward Semantic Web Primer from Linked Data Tools (Basics and sections 1-3

Date	Theme	Assignments	Readings
			only.)
			Ray (video)
			Hypen
			Bush
			Optional
			Moulaison and Million
			Brookshear, Ch. 4 (read if you aren't quite sure how networks, the Internet, and the Web are currently structured)
			O'Hara and Hall, 2010 (read this entry from the Encyclopedia of Library and Information Science if you want more background on the Semantic Web)
Week 14 November 27	Thanksgiving holiday No class.		
Week 15: December 4	Information structures: data ("big" and otherwise)	Project 3, Futurama, due in class. Your final response essay must be posted to Canvas by noon.	McKinsey and Company Beagrie Vertesi and Dourish Blumenstock Singer *Optional* Bowker Foster and Evans

Bibliography of course readings

All course readings are available in Canvas.

Bagui, Sikha, and Richard Earp. (2003) *Database design using entity-relationship diagrams.* Boca Raton, FL: Auerbach Publications. Ch. 2.

Basso, Keith. (1996) *Wisdom sits in places: landscape and language amongst the western Apache.* Albuquerque, NM: University of New Mexico Press. *(Ch. 2 is required; Ch. 4 is optional.)*

Beagrie, Neil. (2006) Digital curation for science, digital libraries, and individuals. *International Journal of Digital Curation* 1(1): 3-16.

Bearman, David, and Richard Lytle. (1985) The power of the principle of provenance. *Archivaria* 21:14–27. *(This reading is optional.)*

Blumenstock, Joshua. (2012) Inferring patterns of internal migration from mobile phone call records: evidence from Rwanda. *Information Technology for Development* 18:2, 107-125.

Bogost, Ian. (2006) *Unit operations: an approach to video game criticism.* Cambridge, MA: MIT Press. (Ch. 1, pp. 3-19.) *(This reading is optional.)*

Bowker, Geoffrey. (2000) Biodiversity datadiversity. *Social Studies of Science* 30(5): 643–683. *(This reading is optional.)*

Brookshear, J. Glenn., David T. Smith, and Dennis Brylow. (2010) *Computer science: an overview.* 11th ed. Pearson. (Excerpts from various chapters.)

Buckland, Michael. (1997) What is a "document"? *Journal for the American Society of Information Science* 48 (9): 804–809.

Bush, Vannevar. (1948) As we may think. *The Atlantic Monthly,* July 1945: 101-108. (Available at: http://sloan.stanford.edu/mousesite/Secondary/Bush.html)

Clark, Andy. (1998) *Being there: putting brain, body, and world together again.* Cambridge, MA: MIT Press.

Cleverdon, Cyril. (1967) The Cranfield tests on index language devices. Reprinted in *Readings in Information Retrieval,* Karen Sparck Jones and Peter Willet, eds. New York: Morgan Kaufman, 1997.

Clifford, James. (1986) *The predicament of culture.* (Ch. 10, pp. 215-251.)

Chen, Peter Pin-Shan. The entity-relationship model: toward a unified view of data. *ACM Transactions on Database Systems* 1(1): 9-36. *(This reading is optional.)*

Croft, Bruce. (2009) *Search engines and information retrieval.* Pearson. (Ch. 1, pp. 2-12.)

Cvetkovich, Ann. (2003) *An archive of feelings: trauma, sexuality, and lesbian public culture.* Durham, NC: Duke University Press. Ch. 7, 239-271.

Dourish, Paul. (2010). The View from Arnhem Land in Australia's Remote North: "Computational Thinking" and the Postcolonial in the Teaching from Country Program. *Learning Communities: The International Journal of Learning in Social Contexts* 2, 91-101.

Dupre, John. (2006) Scientific classification. *Theory, Culture, and Society* 23(2-3): 30-32.

Duval, Erik, Wayne Hodgins, Stuart Sutton, and Stuart Weibel. (2002) Metadata principles and practicalities. *D-Lib* 8(4). Available at: http://www.dlib.org/dlib/april02/weibel/04weibel.html *(This reading is optional.)*

Ereshevsky, Marc. (2007) *The poverty of the Linnean hierarchy: a philosophical study of biological taxonomy.* Cambridge, UK: Cambridge University Press. (Ch. 2 and 4-5; pp. 50-80 and pp. 129-193)

Evans, James, and Jacob Foster. (2011) Metaknowledge. *Science* 331 (February 11, 2011), 721-725. *(This reading is optional.)*

Floridi, Luciano. (2010) *Information: a very short introduction.* Oxford, UK: Oxford University Press. (Ch 2-5, pp. 19-59.)

Gilliland, Anne. Setting the stage. In *Introduction to Metadata*. 3rd ed (online edition). Edited by Murtha Baca. Available at: http://www.getty.edu/research/conducting_research/standards/intrometadata/setting.html

Gilliland, Anne. (2000) *Enduring paradigm, new opportunities: the value of the archival perspective in the digital environment.* (This section only: The archival paradigm: the genesis and rationales of archival practices and principles.) Council of Library and Information Resources (CLIR). Available at: http://www.clir.org/pubs/reports/pub89/contents.html

IFLA. Functional Requirements for Bibliographic Records final report. Available at: http://www.ifla.org/VII/s13/frbr/frbr.pdf (Sections 3.1-3.11, and sections 4.1-4.4 only, pages 13-14, 17-24, 31-49.)

Hesser, Amanda. (2011) Google's new recipe search (update). Food52 blog. May 18, 2011. (Available at: http://www.food52.com/blog/1838_googles_new_recipe_search). And read the comments! Particularly from Kavi, the Google project manager, and David Lebowitz, the recipe writer.

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Kennedy, Randy. (2011) An interactive tour through the Barnes Foundation (collector as artist). *New York Times,* Arts Beat blog, July 11, 2011. (Available at: http://artsbeat.blogs.nytimes.com/2011/07/11/an-interactive-tour-through-the-barnes-foundation/?scp=2&sq=barnes%20collection&st=cse). Click the photograph to enter the tour interface.

King, William Davies. (2008) *Collections of nothing*. Chicago: University of Chicago Press. (Ch. 4-7, pp. 79-163.) *(This reading is optional.)*

Lakoff, George. (1987) *Women, fire, and dangerous things*. Chicago: University of Chicago Press. (Chapters 1-4.)

Linked Data Tools. Semantic Web Primer. Available at: http://www.linkeddatatools.com/semantic-web-basics (Basics and sections 1-3 only.)

Lee, Hur-Li. (2000) What is a collection? *Journal of the American Society for Information Science* 51(12): 1106-1113.

Lemieux, Victoria. (2002) Let the ghosts speak: an empirical examination of the nature of a "record." *Archivaria* 51: 81-111.

Lincoln, Denise Santoro. (2011) Google's new recipe search: a food blogger's dilemma. Bay Area Bites blog, March 17, 2011. (Available at: http://blogs.kqed.org/bayareabites/2011/03/17/google%E2%80%99s-new-recipe-search-a-food-bloggers-dilemma/)

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Macneil, Heather. (2002) Trusting records in a postmodern world. *Archivaria* 51: 36-47.

Manning, Christopher, Prabhakar Raghvan, and Hinrich Schutze. (2008) An introduction to information retrieval. Cambridge, UK: Cambridge University Press. (Ch. 1, Ch. 6, Ch. 11, pp. 1-18, 109-134, 219-236.) *(This reading is optional.)*

Manovich, Lev. The language of new media. Cambridge, MA: MIT Press. (Ch. 5, p 213-244).

McDonough, Jerome, Matthew Kirschenbaum, Doug Reside, Neil Fraistat, and Dennis Jerz. (2010) Twisty little passages almost all alike: applying the FRBR model to a classic computer game. *Digital Humanities Quarterly* 4(2). (Available at http://digitalhumanities.org/dhq/vol/4/2/000089/000089.html)

McGann, Jerome. (2001) *Radiant textuality: literature after the World Wide Web.* New York: Palgrave. (Ch. 5, 137-160.) *(This reading is optional.)*

McKinsey and Company Global Institute. (2011) Big data: the next frontier for innovation, competition, and productivity. Executive summary. (Available at http://www.mckinsey.com/insights/business_technology/big_data_the_next_frontier_for_innovation)

Merleau-Ponty, Maurice. (1964) *The primacy of perception and other essays on phenomenological psychology, the philosophy of art, history, and politics.* William Cobb, trans. Evanston, IL: Northwestern University Press. (Ch. 5, Eye and Mind.) *(This reading is optional.)*

Millerand, F., and Bowker, G. (2009) Metadata standards: trajectories and enactment in the life of an ontology. In S. L. Star & M. Lampland (Eds.), *Formalizing Practices: Reckoning with Standards, Numbers and Models in Science and Everyday Life.*

Moulaison, Heather Lea, and Anthony Million. (2014) The disruptive qualities of linked data in the library environment: analysis and recommendations. *Cataloging and Classification Quarterly* 52(4): 367–387.

National Information Standards Organization (NISO). (2007*) A framework of guidance for building good digital collections.* A recommended practice. 3rd ed. *(This reading is optional.)*

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Nunberg, Geoffrey. (2009) Google Books: A metadata train wreck. Language Log blog. (Available at http://languagelog.ldc.upenn.edu/nll/?p=1701)

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Ray, Kate. (2010) Web 3.0: a story about the Semantic Web. Available at http://vimeo.com/11529540

Rayward, Boyd. (1994) Visions of Xanadu: Paul Otlet and hypertext. *Journal of the American Society for Information Science,* 45(4): 235–250.

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