

# INLS 201, Foundations of Information Science

## Fall 2018

### Basic Information

*Date and time:* Mondays and Wednesdays 8am – 9:15am

*Location:* Manning 208

### Instructor Information

*Instructor:* Dr. Megan Winget

*E-mail:* [megan.winget@unc.edu](mailto:megan.winget@unc.edu)

*Office:* Manning 06 (on “the garden level,” right around the corner from Manning 01)

*Office hours:* Wednesdays from 10am – 11am

Anyone can come to office hours to discuss anything, without making an appointment in advance. It's a great time to ask questions about assignments, to ask for help, or just to say hello.

### Introduction

The field known as “information science” involves the representation, storage, organization, retrieval and use of...well, “information”! But what is this “information”? This is a surprisingly complex question. If we think about some of the things that we might describe as “information”—documents like this syllabus, Web pages, photographs, tweets, books, podcasts, results of Google searches, event flyers stuck on telephone poles, the number of steps that is recorded by a Fitbit each day, Egyptian hieroglyphics painted on pyramid walls, text messages, video from surveillance cameras—these constitute an immense variety of form (images, text, video, sound) modality (digital pixels, physical paint) and access mechanism (to see an event flyer, you need to walk past it; to receive a text message, you need a smartphone). There are vast technical challenges to managing all of these diverse objects. Still, the technical aspects of information management are relatively concrete.

But there's yet another level to our understanding of information. What do all these different types of informational messages have in common? They are only useful when people decode them—when we understand what they mean. While the technical challenges associated with information management are significant, the challenges associated with meaning and interpretation are even more vexing. Questions of meaning are inherently uncertain, ambiguous, and contextual.

Information science, then, requires thinking on multiple levels. There is the conceptual level of understanding how messages come to acquire meaning and value, and there is the technical level of understanding how messages can be manipulated to enable practical goals. These conceptual and technical levels are tightly integrated and can't be understood in isolation. For example, we find it natural to look for information based on its topic, or its aboutness. But aboutness is a human judgment of meaning. While we can develop technical solutions to automate document retrieval that operate on relatively concrete document properties, such as word frequencies, these apparently concrete technical solutions are only approximations for human interpretive judgments. If we want to understand both the capabilities and limitations of technical solutions for information-related processes, we need to think about how people produce meaning, as well as about how computers can manipulate information objects.

In this course, we will examine conceptual and technical foundations of representing, organizing, retrieving, and using information. We will emphasize how the conceptual and technical bear upon each other. We will also explore how these integrations and frictions manifest in contemporary life.

The course is roughly organized into three parts. The first and third parts are more conceptually oriented, and the second part is more technically oriented.

- Part 1, from *August 21 through September 26*, looks at core ideas of meaning, representation, and categorization.
- Part 2, from *October 1 through November 12*, looks at mechanisms for modeling information computationally, to automate our interactions with information. (Our emphasis here is on understanding these mechanisms at a fundamental level, and not on implementing them.)
- Part 3, from *November 14 through December 5*, looks at the effects of such computational models, and their associated emphasis on ranking and rating, in contemporary life.

### Learning objectives

At the end of this course, you will:

- Be familiar with fundamental concepts and concerns associated with information studies.
- Be able to relate these concepts and concerns to current events, situations, and technologies.
- Be prepared to succeed in further SILS coursework.

### Grading

You will be assessed based on the following elements:

- Three take-home exams (two midterms and a final): 100 points each.
- Participation: 100 points
  - 40 points – Blogging
  - 60 points – In-Class Discussions

There is a total of 400 points.

Final grades will be assigned according to the following schedule:

A	375 to 400
A-	360 to 374
B+	348 to 359
B	336 to 347
B-	320 to 335
C+	308 to 319
C	296 to 307
C-	280 to 295
D+	268 to 279
D	240 to 267
F	<240

## Assessment Details

### *Take-home exams*

The three take-home exams will each address one segment of the course. The exams will ask you to synthesize material from readings, lectures, and in-class activities and apply your understanding to a contemporary situation.

<i>Exam</i>	<i>Material addressed</i>	<i>Date distributed</i>	<i>Date due</i>
Midterm #1	August 21 – September 26	September 24	October 2 at 9 p.m.
Midterm #2	October 1 – October 31	October 29	November 6 at 9 p.m.
Final exam	November 5 – December 5	November 28	December 7 at 11 a.m.

Instructions and grading criteria will be supplied in class on the date that the exam prompts are distributed. Exams will consist of primarily essay questions that will ask you to both explain concepts and apply them.

You will turn in all exams as a PDF file via the “Assignments” tool in Sakai as a PDF file.

- Midterm exams are due at 9 p.m. on the date listed above. Sakai will not accept late exams; students will have to turn in directly to me via email, and will be automatically penalized 5 points.
- Students will also turn in the final exam as a PDF file via the Assignments tool in Sakai. The exam is due at the time when the scheduled final exam would end. Due to university policy, it will not be possible to turn in late final exams.

### *Late work*

Late midterm exams are penalized 5 points for each day that the exam is late. A day begins when the exam is due and continues until 24 hours have passed. Extensions will be granted in exceptional cases only.

### *Presentation details*

When writing exams, you may select whatever font, font size, margin, spacing, and other options that you like, as long as your work is professionally presented.

In making in-text references or preparing reference lists for outside sources, you may adopt any standard citation style you prefer (such as APA or the Chicago Manual of Style). You do not need to prepare a reference list for class readings (although you need to cite these materials within your text).

## Participation

Participation is a chance for students to discuss the unit's readings with their peers (in the case of the mostly weekly discussion sessions); and to digest their readings by finding relevant materials and projects on the web (in the case of blogging).

Showing engagement with material via various discussion mechanisms is very important. Therefore, participation is an important part of the course, and represents a quarter of the final course grade. *Your success in this course depends on your engagement with the material, with each other, and with me* through the in-class discussion sessions and the class blog.

Even though the participation assessment is, essentially, credit / no credit - it's really the best way for me to know that students are actively working through this subject material. Not only is this good for you - you get a chance to think about things your own way - but participating fully is good for everyone in the class - engagement is a "good thing." Be the change you want to see! Lead by proactive example!

Participation includes asking clarifying questions, answering questions raised by other students, commenting on other students' messages, responding to specific passages in the readings, sharing your expertise and resources, or posing issues pertinent to the subject.

- **[Mostly] Weekly Discussion Sessions: 60 points** (12 discussions x 5 points per week). We will have devoted class time for discussion.
  - Assessment of discussion sessions will be, essentially, credit / no credit. If students are present for the discussion, and they have not disrupted the discussion (i.e., absolutely not participating, insulted or threatened colleagues), they will receive full credit.
  - At the beginning of every discussion class, I will hand out cards for students to fill out with open-ended questions (impossible to get "wrong"). These cards will act as an attendance record for these classes.
- **Posting to the Class Blog: 40 Points** (4 blog posts / 5 points each; 4 comments on other students' blog posts / 5 points each). This website also acts as the class blog. (Look under the "blog" tab in the navigation bar above). Throughout the course, students will post (at least) 4 blog stories, and comment on their colleagues' stories (at least) 4 times. Blog posts are a chance for students to identify class topics in the real world. Students will find articles online that are related to class content, link to that article, write a brief synopsis (between 250 – 500 words) of the article and describe why they think the article is interesting in terms of topics covered in the course.
  - Assessment: Like the discussion sessions, this assessment is credit / no credit. If a student writes 4 blog posts and comments on 4 other blog posts, they will receive full credit. However, **students may get credit for only one blog post per week (that is, students should not wait until the last week to do all of the blog posts), but may comment on others' posts whenever it's relevant.**
  - **Students will be responsible for tracking their progress on blog postings.**
  - By the final day of classes, students will fill out a "[BloggingProof](#)" (Word Doc) and turn in via Sakai.

*Remember: Students may only get credit for one blog post per week.*

## Semester Calendar

All readings are available in the Resources area of the course Sakai site.

For each day of the course, read the listed materials **before class**.

*At the end of each class session, I will provide a brief introduction to the reading for the next session, with a few questions to consider for each reading. You should be prepared to discuss these questions in class.*

Date	Topics	To read before class
Wednesday, August 22	Introduction	Course syllabus
Monday, August 27	Class cancelled today!	
Wednesday, August 29	Information as facts	Luciano Floridi. 2010. <i>Information: a very short introduction</i> . London: Oxford University Press. (Chapters 2-4, p. 19-59.)
Monday, September 3	Information as "literatures"	Phil Agre. 1995. Institutional circuitry: thinking about the forms and uses of information. <i>Information Technology and Libraries</i> 14(4): 225-230.
Wednesday, January 5	Information as signal and noise (information theory)	James Gleick. 2011. <i>The Information</i> . New York: Pantheon Books. (Chapter 7, p. 204–232.)
Monday, September 10	Information as signs (semiotics)	John Fiske. 1990. <i>Introduction to Communication Studies</i> , 2nd ed. London and New York: Routledge. (Excerpts: pages 6–12, 39–46, 56–58, 64–65.)
Wednesday, September 12	Image information as signs (semiotics of images)	Scott McCloud. 1994. <i>Understanding Comics</i> . 1st HarperPerennial ed. New York: HarperPerennial. (Chapter 2, p. 24–59.)  Amanda Hess and Quatrung Bui. 2017. What love and sadness look like in 5 countries, according to their top GIFs. <i>New York Times</i> December 29, 2017. Available at: <a href="https://nyti.ms/2EdPHSb">https://nyti.ms/2EdPHSb</a>
Monday, September 17	Distinguishing between things	Patrick Wilson. 1968. Two kinds of power: an essay on bibliographical control. Berkeley, CA: University of California Press. Chapter 1 (p. 6-19).  Henry Thompson. 2010. What is a URI and why does it matter? Available at: <a href="http://www.ltg.ed.ac.uk/~ht/WhatAreURIs/">http://www.ltg.ed.ac.uk/~ht/WhatAreURIs/</a>

Date	Topics	To read before class
Wednesday, September 19	Distinguishing between types of things (categorizing)	<p>Eviatar Zerubavel. 1999. <i>The fine line: making distinctions in everyday life</i>. Chicago: University of Chicago Press. Chapters 1-2, 1-32.</p> <p>Yaa Gyasi. 2016. I'm Ghanian-American. Am I black? <i>New York Times</i> June 18, 2016.</p> <p>Moises Velasquez-Manoff. 2017. What doctors should ignore. <i>New York Times</i> December 8, 2017. Available at: <a href="https://nyti.ms/2BNsCDT">https://nyti.ms/2BNsCDT</a></p>
Monday, September 24	Naming things	<p>Camilla Domonoske. 2017. How two women fought to be called "Miss" and "Ms." NPR, All Things Considered, November 30, 2017. (Listen to the 8-minute sound recording or read the transcript.) Available at: <a href="https://www.npr.org/2017/11/30/567572923/how-two-women-fought-to-be-called-miss-and-ms">https://www.npr.org/2017/11/30/567572923/how-two-women-fought-to-be-called-miss-and-ms</a></p> <p>Daniel Duane. 2017. Goodbye, Yosemite. Hello, what? <i>New York Times</i> September 2, 2017. Available at: <a href="https://nyti.ms/2xGrpwO">https://nyti.ms/2xGrpwO</a></p> <p>Jason Horowitz. 2017. In Myanmar, Pope Francis calls for peace without saying "Rohingya." <i>New York Times</i> November 29, 2017. Available at: <a href="https://nyti.ms/2icUbCD">https://nyti.ms/2icUbCD</a></p> <p>Mary Hui. 2017. Flight 666 to HEL takes off for one last time. <i>Washington Post</i> October 13, 2017. Available at: <a href="https://www.washingtonpost.com/news/acts-of-faith/wp/2017/10/13/flight-666-to-hel-took-off-one-last-time-this-friday-the-13th">https://www.washingtonpost.com/news/acts-of-faith/wp/2017/10/13/flight-666-to-hel-took-off-one-last-time-this-friday-the-13th</a></p>
Wednesday, September 26	Describing things systematically	<p>Lorraine Daston. 2015. Cloud physiognomy: describing the indescribable. <i>Representations</i> 135, Summer 2015, 45-71.</p> <p>Eli Rosenberg. 2016. The mountain that tops Everest (because the world is fat). <i>New York Times</i>, May 16, 2016.</p>
Monday, October 1	Categorizing things systematically	<p>Eric J. Hunter. 2002. <i>Classification made simple</i>. 2nd ed. Aldershot, England: Ashgate. (Chapters 1-5.)</p> <p>John Dupre. 2006. Scientific classification. <i>Theory, Culture, and Society</i> 23(2-3): 30-32.</p>
Wednesday, October 3	Computation	<p>W. Hillis. 1998. <i>The Pattern on the Stone</i>. New York: Basic Books. (Chapter 1, p. 1-38.)</p>

Date	Topics	To read before class
Monday, October 8	Sets and Boolean algebra	Edmund C. Berkeley. 1937. Boolean algebra (the technique for manipulating AND, OR, NOT and conditions). <i>The Record</i> 26 part II (54): 373–414.
Wednesday, October 10	Modeling information about things as sets: relational databases	Peter Pin-Shan Chen. 1976. The entity-relationship model—toward a unified view of data. <i>ACM Transactions on Database Systems</i> 1(1): (9–36.
Monday, October 15	Modeling information about things as graphs: networks	David Easley and Jon Kleinberg. 2010. <i>Networks, crowds, and markets: reasoning about a highly connected world</i> . New York: Cambridge University Press. Chapter 1 (p. 1-20).
Wednesday, October 17	Fall break No class	
Monday, October 22	Computationally created models: Boolean retrieval (and modeling texts for computation)	Christopher Manning, Prabhakar Raghvan, and Hinrich Schütze. 2009. <i>Introduction to Information Retrieval</i> , New York: Cambridge University Press. (Chapters 1 and 2, 1–34.)
Wednesday, October 24	Assessing the results of computation: correctness	Brian Cantwell Smith. 1985. The limits of correctness. In Symposium on Unintentional Nuclear War, Fifth Congress of the International Physicians for the Prevention of Nuclear War. Budapest, 1985.
Monday, October 29	Statistical models	Cathy O’Neil. 2016. <i>Weapons of Math Destruction</i> . New York: Crown, 2016. (Chapter 1, 15–31.)
Wednesday, October 31	Probability	Ian Hacking. 2001. <i>An Introduction to Probability and Inductive Logic</i> . Cambridge: Cambridge University Press. (Chapters 2-7, p. 11-77.)
Monday, November 5	Computationally created models: Probabilistic retrieval and ranked lists	M.E. Maron. 1961. Automatic indexing: an experimental inquiry. <i>Journal of the ACM</i> 8(3): 404–17.

Date	Topics	To read before class
Wednesday, November 7	Assessing the results of ranked lists: relevance	<p>Michael Buckland. 2017. <i>Information and society</i>. Cambridge, MA: MIT Press. (Chapter 8.)</p> <p>Patrick Wilson. 1968. Two kinds of power: an essay on bibliographical control. Berkeley, CA: University of California Press. Chapter 3 (p. 41-54).</p>
Monday, November 12	Assessing the results of ranked lists: information credibility	<p>Soo Young Rieh. 2010. Credibility and cognitive authority of information. In <i>Encyclopedia of Library and Information Sciences</i>, Marcia Bates, ed. New York: CRC Press, 1337-1344.</p> <p>Kate Starbird. 2017. Information wars: a window onto the alternative media ecosystem. <i>Medium</i> March 14, 2017. Available at: <a href="https://medium.com/hci-design-at-uw/information-wars-a-window-into-the-alternative-media-ecosystem-a1347f32fd8f">https://medium.com/hci-design-at-uw/information-wars-a-window-into-the-alternative-media-ecosystem-a1347f32fd8f</a></p>
Wednesday, November 14	Computationally created models: topic models	<p>Jordan Boyd-Graber, Yuening Hu, and David Mimno. 2017. Applications of topic models. <i>Foundations and Trends in Information Retrieval</i> 11(2-3). (Chapter 1, p. 144-162; chapter 6, 211-222.)</p> <p>Matt Burton. 2013. The joy of topic modeling. Available at: <a href="http://mcburton.net/blog/joy-of-tm/">http://mcburton.net/blog/joy-of-tm/</a></p>
Monday, November 19	Assessing the results of topic models: visualizations	Jordan Boyd-Graber, Yuening Hu, and David Mimno. 2017. Applications of topic models. <i>Foundations and Trends in Information Retrieval</i> 11(2-3). (Chapter 3, 180-190)
Wednesday, November 21	<p><i>Thanksgiving</i> <i>No class</i></p>	



Date	Topics	To read before class
Monday, November 26	Pervasive sorting and ranking: social effects	<p>Safiya Noble. 2013. Google search: hyper-visibility as a means of rendering black women and girls invisible. <i>InVisible Culture: an Electronic Journal for Visual Culture</i> 19. Available at: <a href="http://ivc.lib.rochester.edu/google-search-hyper-visibility-as-a-means-of-rendering-black-women-and-girls-invisible/">http://ivc.lib.rochester.edu/google-search-hyper-visibility-as-a-means-of-rendering-black-women-and-girls-invisible/</a></p> <p>Julia Angwin, Jeff Larson, Surya Mattu, and Lauren Kirchner. 2016. Machine bias. ProPublica, May 23, 2016. Available at: <a href="https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing">https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing</a></p>
Wednesday, November 28	Pervasive sorting and ranking: economic effects	<p>David Segal. 2011. The dirty little secrets of search. <i>New York Times</i>, February 12, 2011. Available at: <a href="http://www.nytimes.com/2011/02/13/business/13search.html">http://www.nytimes.com/2011/02/13/business/13search.html</a></p> <p>Adam Duhigg. 2012. How companies learn your secrets. <i>New York Times</i>, February 16, 2012. Available at: <a href="http://www.nytimes.com/2012/02/19/magazine/shopping-habits.html">http://www.nytimes.com/2012/02/19/magazine/shopping-habits.html</a></p> <p>Jerry Useem. 2017. How online shopping makes suckers of us all. <i>The Atlantic</i> May 2017. Available at: <a href="https://www.theatlantic.com/magazine/archive/2017/05/how-online-shopping-makes-suckers-of-us-all/521448/">https://www.theatlantic.com/magazine/archive/2017/05/how-online-shopping-makes-suckers-of-us-all/521448/</a></p>
Monday, December 3	Pervasive sorting and ranking: political effects	<p>Renee DiResta and Gilad Lotan. 2015. Anti-vaxxers are using Twitter to manipulate a vaccine bill. <i>Wired</i> June 8, 2015. Available at: <a href="https://www.wired.com/2015/06/antivaxxers-influencing-legislation/">https://www.wired.com/2015/06/antivaxxers-influencing-legislation/</a></p> <p>Nicholas Confessore and Daisuke Wakabayashi. 2017. How Russia harvested American rage to reshape U.S. politics. <i>New York Times</i> October 9, 2017. Available at: <a href="https://nyti.ms/2yTN6cF">https://nyti.ms/2yTN6cF</a></p> <p>Daisuke Wakabayashi. 2017. As Google fights fake news, voices on the margins raise alarm. <i>New York Times</i> September 26, 2017. Available at: <a href="https://nyti.ms/2k0QGzh">https://nyti.ms/2k0QGzh</a></p>
Wednesday, December 5	Pervasive sorting and ranking: cultural effects	<p>Blake Hallinan and Ted Striphas. 2016. Recommended for you: the Netflix Prize and the production of algorithmic culture. <i>New Media and Society</i> 18(1): 117-137.</p>

## Policies

### *Instructor communication*

For specific, concrete questions, e-mail is the most reliable means of contact for me. You should receive a response within 24 hours (Monday – Friday) but weekends or holidays might take 2 or 3 days. If you do not receive a response after by Monday at noon, please follow up. Please keep this in mind when you are scheduling your own activities, especially those related to exam

preparation. If you wait until the day before an exam to ask me a clarification question, there is a good chance that you will not receive a response before the exam.

It is always helpful if your e-mail includes a targeted subject line that begins with **"INLS 201."** Please use complete sentences and professional language in your e-mail.

For more complicated questions or help, come to office hours (no appointment necessary!) or make an appointment to talk with me at a different time. I cannot discuss grades over e-mail; if you have a question about grading, you must talk with me in person.

You are welcome to call me by my first name ("Megan"). However, you may also use "Dr. Winget" if that is more comfortable for you. Either is fine.

### *Academic integrity*

The UNC Honor Code states that:

It shall be the responsibility of every student enrolled at the University of North Carolina to support the principles of academic integrity and to refrain from all forms of academic dishonesty...

This includes prohibitions against the following:

- Plagiarism.
- Falsification, fabrication, or misrepresentation of data or citations.
- Unauthorized assistance or collaboration.
- Cheating.

All scholarship builds on previous work, and all scholarship is a form of collaboration, even when working independently. Incorporating the work of others, and collaborating with colleagues, is welcomed in academic work. However, the honor code clarifies that you must always acknowledge when you make use of the ideas, words, or assistance of others in your work. This is typically accomplished through practices of reference, quotation, and citation.

If you are not certain what constitutes proper procedures for acknowledging the work of others, please ask the instructor for assistance. It is your responsibility to ensure that the [honor code](#) is appropriately followed. (The [UNC Office of Student Conduct](#) provides a variety of honor code resources.)

The UNC Libraries has online tutorials on [citation practices](#) and [plagiarism](#) that you might find helpful.

### *Students with disabilities*

Students with disabilities should request accommodations from the UNC office of Accessibility Resources and Service (<https://accessibility.unc.edu/>).

### **Acknowledgements and thanks**

This syllabus includes elements of INLS 201 sections taught by Diane Kelly, Ron Bergquist, Melanie Feinberg and Ryan Shaw.