INLS 201, Foundations of Information Science
Fall 2019

Basic Information

Date and time: Tuesdays and Thursdays, 12:30 to 1:45 p.m.
Location: Manning 307

Instructor Information

Instructor: Sayamindu Dasgupta
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Office: Manning 22
Office hours: By appointment

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, thus, 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 properties 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 20 through September 24, looks at core ideas of meaning, representation, and categorization.
- Part 2, from September 26 through November 5, 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 7 through December 3, 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.
- Reading reflections: 50 points
- Participation: 50 points.
There is a total of 400 points.

Final grades will be assigned according to the following schedule:

A   380 to 400
A-   360 to 379
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.

Exam	Material addressed	Date distributed	Date due
Midterm #1	August 20 – September 24	September 24	October 4 at 11:59 p.m.
Midterm #2	September 26 – November 5	November 5	November 15 at 11:59 p.m.
Final exam	November 7 – December 3	December 3	December 13 at 8:00 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.

Submit a PDF copy of your exam on Sakai by the time and day it is due. Sakai will not accept late submissions, and you will have to email me your exam.

Late work
Late exams are penalized 5 points for each day that the exam is late. A day begins when the exam is due (that is, at the beginning of class) 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).

Reading reflections
You are expected to read the material for a given day *before* coming to class. Each day before class, write a short paragraph (around 100-200 words) describing something that you found compelling about the reading. For example, it can be something that resonated with your own experience(s), something that you disagreed with, or something that led to an "aha! moment" for you. *You do not have to cover or summarize all the readings in their entirety for the reading reflection.* The written assignment will have to be submitted to a website that is visible to everyone in the class–I encourage you to also look at what your classmates have written. Details on the website where you will be posting the reflections will be shared in class, and will also be emailed out on the first week.

Participation
Participation will be graded according to these criteria:
- *Attendance.*
  It is important for you to attend class. Please be seated and ready when class begins. If personal difficulties (serious illness, etc.) make attendance problematic, please consult with me so that we can make an appropriate plan.
- *Deportment.*
  You should be attentive in class and respectful of your classmates and the instructor. Turn off cell phones and other devices that might disrupt class. Use laptops and other devices to support current course activities only.
- *Engagement.*
  Engagement includes: reading the assigned materials before class; asking questions when you do not understand the readings; making observations about the readings, being able to summarize their main points, and being able to respond to questions about the readings; participating in class activities; responding to discussion questions or other questions that I might ask during a lecture; actively listening and taking notes. I welcome productive disagreement (especially with me!), as long as it is expressed constructively and courteously. I value all informed opinions and encourage you to share them.

Engagement will be weighted more heavily than attendance and deportment.

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
Tuesday, August 20	Introductions	
Thursday, August 22	Information Science in our lives	Costanza-Chock, 2018
Tuesday, August 27	Information as facts	Floridi, 2010 (chapters 2, 3, and 4)
Thursday, August 29	Information as "literatures"	Agre, 1995
Tuesday, September 3	Information as signal and noise (information theory)	Gleick, 2011 (chapter 7)
Thursday, September 5	Information as signs (semiotics)	Fiske, 1990
Tuesday, September 10	Distinguishing between things	Wilson, 1968 (chapter 1) Thompson, 2010
Thursday, September 12	Distinguishing between types of things (categorizing)	Zerubavel, 1991 (chapters 1-2) Gyasi, 2016 Velasquez-Manoff, 2017
Tuesday, September 17	Naming things	Domonoske, 2017 Duane, 2017 Horowitz, 2017 Hui, 2017
Thursday, September 19	Describing things systematically	Daston, 2016 Rosenberg, 2016
Tuesday, September 24	Categorizing things systematically	Hunter, 2002 Dupre, 2006
Thursday, September 26	Computation	Hillis
Tuesday, October 1	Sets and Boolean algebra	Berkeley, 1937
Thursday, October 3	Modeling information about things as sets: relational databases	Chen, 1976
Tuesday, October 8	Modeling information about things as graphs: networks	Easley and Kleinberg, 2010 (chapter 1)
Thursday, October 10	Computationally created models: Boolean retrieval (and modeling texts for computation)	Manning, Rhagvan, and Schutze, 2009 (chapters 1 and 2)
Tuesday, October 15	Assessing the results of computation: correctness	Cantwell Smith, 1985
Thursday, October 17	*Fall break: No class*	
Tuesday, October 22	Statistical models	O'Neil, 2016 (chapter 1)
Thursday, October 24	Probability	Hacking, 2001 (chapters 2-7)
Tuesday, October 29	Computationally created models: Probabilistic retrieval and ranked lists	Maron, 1961
Thursday, October 31	Assessing the results of ranked lists: relevance	Buckland, 2017 (chapter 8) Wilson, 1968 (chapter 3)
Tuesday, November 5	Assessing the results of ranked lists: information credibility	Rieh, 2010 Starbird, 2017
Thursday, November 7	Computationally created models: topic models	Boyd-Graber, Hu, and Mimno, 2017 (chapters 1 and 6) Burton, 2013

Date	Topics	To read before class
Tuesday, November 12	Pervasive sorting and ranking: social effects	Noble, 2013 Angwin, Larson, Mattu, and Kirchener, 2016
Thursday, November 14	Pervasive sorting and ranking: economic effects	Segal, 2011 Duhigg, 2012 Useem, 2017
Tuesday, November 19	Pervasive sorting and ranking: political effects	Diresta and Lotan, 2015 Confessore and Wakabayashi, 2017 Wakabayashi, 2017
Thursday, November 21	Pervasive sorting and ranking: cultural effects	Hallinan and Sriphas, 2014
Tuesday, November 26	TBD...	
Thursday, November 28	*Thanksgiving: No class*	
Tuesday, December 3	Wrap-up and reflections	

Policies

Instructor communication
For specific, concrete questions, e-mail is the most reliable means of contact for me. You should receive a response within a day or so, but sometimes it may take 2-3 days. If you do not receive a response after a few days, 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 also.

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 ("Sayamindu" -- pronounced "Shayomindoo"). However, you may also use "Dr. Dasgupta" or "Professor Dasgupta" if that is more comfortable for you. Any one of those 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/).

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