

# LIS 351

## Introduction to Digital Information

School of Library and Information Studies  
University of Wisconsin-Madison  
Spring 2017

Instructor: Dorothea Salo (please call me “Ms. Salo”)  
Office hours: T 2:30-3:30, R 10-11 or by appointment

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Online course space: in CANVAS, not Learn@UW: <https://canvas.wisc.edu/courses/37484>

Lab sections: T 1:20-2:10, R 11-11:50, all in the SLIS Laboratory Library computer lab, 4160 Helen C. White Hall

## Introduction

### Course description

This course introduces you to current technologies and policy issues associated with digital information, with an emphasis on information-organization technologies. The course prepares you to handle information-organization and information-access challenges in your field of interest. You will become familiar with current approaches for organizing and describing digital information such that both people and computers can leverage it. You will learn how the Internet shapes access to and use of digital information, and you will use information technology to solve problems and help people.

### Course Objectives: Technical

- Be able to build a basic web page with HTML and CSS
- Design a basic relational database
- Apply basic techniques for search-engine optimization
- Improve and diversify search-query construction techniques
- Become familiar with digitization standards and techniques
- Apply basic digital-preservation techniques to protect personal digital collections

### Course Objectives: Usability and Accessibility of Information

- Understand why website usability is important; be able to perform basic usability tests
- Understand why website accessibility is important; be able to perform basic accessibility tests
- Understand why search-engine optimization is important; be able to assess a website for search-engine friendliness
- Appropriately and correctly apply Dublin Core metadata to digital objects

### Course Objectives: Information Policy

- Apply the basics of United States copyright law, particularly as it relates to digital information
- Navigate common and challenging privacy and intellectual-property issues, legally and ethically
- Respond thoughtfully and critically to current policy flashpoints in digital information: e.g. Big Data, surveillance, open access/culture/data, filter bubbles

# Course Policies

Instructors aim to make this course as accessible as possible to all students. Students seeking accommodations in lecture, test-taking, or other assignments must provide instructors with a **McBurney Center VISA** within the first two weeks of class. For more information on obtaining a **McBurney Center VISA**, see <http://mcburney.wisc.edu/students/howto.php>.

**Preferred name/pronouns:** It is sometimes the case that a student's legal name or gender assigned at birth are reported to me on official documents in a form not in keeping with that student's preferred name or gender expression. Please let me know, as you are comfortable, about your preferences. My pronouns are she/her/hers. UW-Madison also permits students to indicate a preferred name: [https://registrar.wisc.edu/preferred\\_name.htm](https://registrar.wisc.edu/preferred_name.htm)

The following policies are designed to increase student success in this course:

- Faithful **attendance** in online class and at lab, as well as prompt **completion** of weekly readings and willing **participation** in class. We will check your timely participation in online in-class activity, and reduce your grade by one percentage point per week you do not participate meaningfully.
- Responsible laptop/tablet/smartphone use in lab consists of note-taking and class-related activities only. We reserve the right to reduce your grade for egregious non-academic or distracting use during lab.
- The Writing Center defines "to **plagiarize**" as "to steal and pass off (the ideas and words of another) as one's own" or to "present as new and original an idea or product derived from an existing source." Plagiarism will result in a grade of 0 for the assignment; the plagiarizer may be reported to Student Affairs. See the Writers Handbook (<http://writing.wisc.edu/Handbook/QuotingSources.html>). We follow the academic standards for **cheating** and **plagiarism** set forth by the University of Wisconsin.
- Please follow the Recurse Center's four Social Rules: <https://www.recurse.com/manual#sub-sec-social-rules> (All instructors, lecture and lab, count as "faculty" for Rule 4 reporting purposes.)

## Contacting me

**READ THE SYLLABUS** before asking a question, please; the syllabus may answer it! For any difficulty with the course that is not private or confidential, please bring it up in lab or use the Canvas help forum; we *will not answer such questions by email*. Please also do your best to assist your classmates on the help forum. We are not available weekends; otherwise, we do our level best to answer forum questions and email within two business days.

Should you see dead links (it does happen, usually with no notice), weird due dates, or other syllabus problems, please post them to the "Syllabus problems" forum on Canvas as soon as you see them.

## Known schedule disruptions

Expect Ms. Salo to be slower to respond than usual during the following dates:

- April 20-21: DPLAfest 2017

## Digital Studies capstone project

If you are working on the Digital Studies certificate and need a capstone project, you may set up a brand-new website (redesign/retheming is not eligible!) for a person or organization of your choice, or a professional or hobby site for yourself. The website must contain at least **five pages** with content, and it must pass WAVE accessibility testing. You must also turn in to me and your Digital Studies advisor the results of **one talk-aloud usability test** (performed with any relevant participant), and an explanation of how you improved the site based on test results.

# Assignments

## Grading scale

All final grades will be based on this scale:

A: 93.5-100, AB: 89.5-93.4, B: 83.5-89.4, BC: 79.5-83.4, C: 73.5-79.4, D: 64-73.4, F: anything below 64.

	<b>Final-grade %</b>	<b>Date (quiz/exam) / date due (project)</b>
In-class exercises	15%	(1% each class week)

## Exams

Midterm exam	15%	online, due 17 March 11:59 PM
Final exam	25%	online, due 10 May 11:59 PM

## Projects

Favorite Things website	10%	3 March 11:59 PM
4-table database project	20%	21 April 11:59 PM
Digitization/metadata project	15%	9 December 11:59 PM

Late assignments will be penalized one final-grade point per day or fraction of a day late.

## Lecture modules and exercises

Lecture modules will contain in-class exercises—pre- and post-lecture assessments, short reflections, exercises, etc. For each week, these must be complete by 11:59 PM Friday of the week the course content opens. They are not “graded” per se—pre-lecture assessments particularly I expect you not to get completely correct!—but we will check that they are complete, and provide feedback (usually to the whole class) as needed.

## Favorite Things website

Hand-encode an HTML5 “Favorite Things” website containing a home page on which you introduce yourself, and THREE additional interlinked pages: one page each about your favorite movie or television show, your favorite cuisine or restaurant, and your favorite book. (You may add pages for more favorites if you like!) The content of each page is up to you, but your website as a whole must include **functioning, correctly-tagged, accessible** examples of:

- an HTML5 declaration (must be present and correct on all pages)
- `<title>` tag (must be present and correct on all pages)
- two levels of headers
- a paragraph
- a list (ordered or unordered)
- an image
- a hyperlink to somewhere on the web outside your website
- a navigation section containing links from each page in your site to all the other pages (using a `<nav>` element)

Add an external CSS stylesheet to your website that all its pages link to. Minimally, this stylesheet must:

- Change the font to sans-serif for all HTML heading tags present
- Change the font for all other tags to a serif font that is not the browser default
- Change the background color of the page
- Add margins around the page content

Put the HTML files, CSS file, and image(s) into a folder. Zip the folder. Upload the .zip file to the “Accessible website” assignment box in our Canvas course space.

## Grading rubric:

- All required pages present: 1 point
- Everything in the list above present with correct syntax: 4 points
- All HTML pages validate (no error messages, but warnings OK) in <http://validator.w3.org/>: 3 points
- CSS and images work correctly (correctly linked from HTML): 2 points

## 4-table database assignment

Create a database of at least four interlinked tables somehow related to one or more of your Favorite Things, using Microsoft Access (or, if you have access to it, MySQL). Grading rubric:

- correct naming conventions for entities/tables and attributes/columns (see lecture): 1 point
- at least one bridge entity: 1 point
- one attribute/column of a monetary type: 1 point
- one attribute/column of a date type: 1 point
- autoincremented primary key column in each table: 2 points
- correctly set-up foreign keys: 3 points
- at least four instances/rows of data per table: 3 points
- a one-table SQL query involving money: 3 points
- a two-table SQL query that uses an INNER JOIN: 5 points

Turn in the MS Access file (or MySQL dump) to the “Database” assignment box on Canvas.

## Digitization/metadata project

Part 1: Find two not-yet-digital artifacts to digitize (legally, please! be conscious of copyright). Try for one mostly-textual object (e.g. menu, poster, letter, script, memo, newspaper article) and one non-textual object (photograph, piece of art, audio cassette, VHS video). Digitize these to create a “preservation master” according to ALCTS Minimum Digitization Capture Recommendations <http://www.ala.org/alcts/resources/preserv/minimum-digitization-capture-recommendations> to file formats preferred by the Library of Congress’s Recommended Formats Statement <https://www.loc.gov/preservation/resources/rfs/TOC.html> For audiovisual recordings specifically: digitize 5-10 minutes only (e.g. one song on a record or cassette). Please follow ALCTS’s filenames conventions also.

Next, from this master file save/create a web-friendly derivative file. Turn in your digitized files to the “Digitization/metadata project” Canvas assignment box.

Part 2: Make a separate Simple Dublin Core metadata record for *each* of the two items you digitized. Each record must have a `title` and at least one `creator`; you must also include at least three more correctly-used Simple Dublin Core fields. Turn in your record to the “Digitization/metadata project” Canvas assignment box (don’t worry; it won’t erase your earlier assignment).

Grading rubric:

- two items digitized according to standards: 5 points
- two appropriate web-friendly derivative files: 5 points
- one correct Dublin Core record per item: 5 points

## Course schedule

Week	Dates	Lecture topic(s)	Lab activities	Related major assignment
1	Jan 17-20	Course intro. Usability	HTML 1. HTML validation.	Construct a website
2	Jan 23-27	Accessibility	HTML 2.	
3	Jan 30-Feb 3	How search engines work.	CSS	
4	Feb 6-10	Search-engine optimization. Filter bubbles. Using search engines more effectively.	Accessibility tools: WAVE, AChecker	

Week	Dates	Lecture topic(s)	Lab activities	Related major assignment	
5	Feb 13-17	Language, names, identifiers, and their problems.	Usability testing techniques. Task development. Tools: Peek, Optimal Workshop		
6	Feb 20-24	Controlled vocabularies; tagging and folksonomies; recommender systems.	SEO tools: Raven, Page Locus. Work day.		
7	Feb 27-Mar 3	Database design.	Conceptualizing database tables, columns, and rows.		
8	Mar 6-10	Database design.	Introduction to Access. Making a table. Adding columns. Setting datatypes.		Database project
9	Mar 13-17	Database design. MIDTERM.	Building PK-FK relationships. Adding data to tables.		
10	Mar 27-31	US intellectual-property law. International copyright treaties.	Conceptualizing and performing SQL queries.		
11	Apr 3-7	Digitization basics; digital preservation.	Work day.		
12	Apr 10-14	Metadata	Dublin Core. Digitization training: text and images.	Digitization/metadata project	
13	Apr 17-21	Copyright, DRM, censorship, and Internet regulation	Digitization training: A/V. Making web-friendly derivatives.		
14	Apr 24-28	Surveillance of digital-information use	Work day.		
15	Mar 1-4	“Big data” and privacy. Protecting your security and privacy on the Internet (of Things).	CryptoParty! Bring your own devices and start making them more secure!		

## Reading schedule

Readings are listed under the week they should be completed. Optional textbook purchase: Lynch, P.J., and S. Horton. *Web Style Guide*: 3rd edition. Yale University Press. (On the web at <http://webstyleguide.com/wsg3>)

Many useful and enlightening links have been posted to the class link page (<http://pinboard.in/u:dsalo/t:351>).

## Unit 1: Building the usable, accessible web

### Week 1: Usability; usability-evaluation techniques

*Learning objectives: Usability and UX. Qualitative vs. quantitative data. Metrics (ease of learning, memorability, efficiency, error frequency, satisfaction). Usability tests and testing tools. Open and closed card sorts. Think-aloud protocols.*

Lynch/Horton, "Chapter 2: Universal Usability" (please read all subsections) <http://www.webstyleguide.com/wsg3/2-universal-usability/index.html>

Lynch/Horton, "Navigation and wayfinding" <http://www.webstyleguide.com/wsg3/4-interface-design/2-navigation.html>

Lynch/Horton, "Interface design" <http://www.webstyleguide.com/wsg3/4-interface-design/3-interface-design.html>

Chisnell, "Usability testing demystified" <http://alistapart.com/article/usability-testing-demystified>

Sharma, "Pocket guide to usability testing" <https://www.optimizesmart.com/pocket-guide-to-usability-testing/>

"Card Sorting," <http://www.usability.gov/how-to-and-tools/methods/card-sorting.html>

"System Usability Scale," <https://www.usability.gov/how-to-and-tools/methods/system-usability-scale.html>

Maynard, "Usability testing report" <http://www.theresamaynard.com/DPF%20Usability%20Testing%20Report.pdf>  
(use as a VERY ROUGH guide to your own deliverables for UniverCity Monona)

### Week 2: Accessibility

*Learning objectives: What is accessibility and why is it important? How do people with disabilities access the web? How can we tell if a website is accessible?*

Gibson, "An alphabet of accessibility issues" <https://the-pastry-box-project.net/anne-gibson/2014-July-31>

Jaeger, "Disability, human rights, and social justice: the ongoing struggle for online accessibility and equality" <http://journals.uic.edu/ojs/index.php/fm/article/view/6164/4898>

Rosen, "Why are glasses perceived differently than hearing aids?" <http://www.theatlantic.com/technology/archive/2013/12/why-are-glasses-perceived-differently-than-hearing-aids/282005/>

WebAIM, "Introduction to Web Accessibility" <http://webaim.org/intro>

WebAIM, "Accessibility of Rich Internet Applications" <http://webaim.org/techniques/aria/>

WebAIM WAVE Accessibility testing tool: <http://wave.webaim.org/> (try this on one or two of your favorite websites!)

AChecker accessibility testing tool: <http://www.atutor.ca/achecker/demo.php> (try this on the same sites!)

Sloan and Horton, "Designing better keyboard experiences" <http://www.usertesting.com/blog/2014/10/08/designing-better-keyboard-experiences/>

Vox, "Accessibility Guidelines: The Checklist" <http://accessibility.voxmedia.com/> (for reference; don't try to memorize the whole thing!)

## Unit 2: Searching, search engines, and SEO

### Week 3: How search engines work

*Learning objectives: What is a crawler/spider? What is a (reverse) index? How do search engines build an index of the web? How do they find websites to index? How do search engines index and search non-textual material (images, sound, video)? What are precision and recall, and how can search engines balance them? How do many search-engine results become biased?*

LinguisTech, "Precision and Recall Explained" <http://linguistech.ca/d12087>

Rochkind, "Information Retrieval and Relevance Ranking for Librarians" <http://bibwild.wordpress.com/2011/03/28/information-retrieval-and-relevance-ranking-for-librarians/> (only the following sections: "Recall, precision, and 'too many results'" and "More detail on 'relevance ranking'")

Google, "Crawling and Indexing" <https://www.google.com/insidesearch/howsearchworks/crawling-indexing.html>

Halasz, "How Search Engines Work -- Really" <http://searchengineland.com/how-search-engines-work-really-171556>

“Learn how Google works: in gory detail.” <http://ppcblog.com/how-google-works/>  
Webber, “Should search engines be moral?” <http://qz.com/451051/should-search-algorithms-be-moral-a-conversation-with-googles-in-house-philosopher/> (content warning: adult, possibly not-safe-for-work language)  
Chiel, “Black teenagers’ vs ‘white teenagers’: why Google’s algorithm displays racist results” <http://fusion.net/story/312527/google-image-search-algorithm-three-black-teenagers-vs-three-white-teenagers/>

### **Week 4: Search-engine optimization. Using web search better; web-search filter bubbles; personalized search**

*Learning objectives: What can a website legally and ethically do to rank higher in search engines? What optimization techniques are unethical? Why doesn’t full-text search find every result a searcher might want? Useful Google search modifiers. Filter bubbles and how to avoid them. “Personalized search” and its privacy implications.*

Web Style Guide, “Chapter 5: Search engine optimization” <http://www.webstyleguide.com/wsg3/5-site-structure/4-search-engine-optimization.html>

Moz, “Beginners Guide to SEO” <http://moz.com/beginners-guide-to-seo> (chapters 1, 3, 4)

“The periodic table of SEO success factors.” <http://searchengineland.com/download/seotable/SearchEngineLand-Periodic-Table-of-SEO-2015.pdf> (Read all the descriptions, please.)

Perez, “So-called ‘digital natives’ not media-savvy, new study shows” [http://readwrite.com/2010/07/29/so-called\\_digital\\_natives\\_not\\_media\\_savvy\\_new\\_study\\_shows/](http://readwrite.com/2010/07/29/so-called_digital_natives_not_media_savvy_new_study_shows/) (This is the reason for much of this week’s content. No shame to you if this article describes you—but it’s important not to accept search-engine results uncritically. The study, by the way, is available from <http://ijoc.org/index.php/ijoc/article/view/636> and has been very widely cited.)

“Internet searches create illusion of personal knowledge, research finds” <http://medicalxpress.com/news/2015-03-internet-illusion-personal-knowledge.html>

Catone, “How to use Google Search more effectively.” <http://mashable.com/2011/11/24/google-search-infographic/>  
Read through Google’s Advanced Search [http://www.google.com/advanced\\_search](http://www.google.com/advanced_search) and Advanced Image Search [http://www.google.com/advanced\\_image\\_search](http://www.google.com/advanced_image_search) forms. Make a note of any fields you don’t understand; we’ll clear them up in lecture and/or on the help forums.

DuckDuckGo, “Escape your search engine’s filter bubble.” <http://dontbubble.us/>

## **Unit 3: Organizing digital information**

### **Week 5: Language, names, identifiers, and their problems**

*Learning objectives: Category systems, the problems they solve, and the problems they create. Naming systems, the problems they solve, and the problems they create. Proxy identifiers. Identifiers on the Web. Direct and indirect digital identifiers. Internet identifiers (IP address, MAC address, domain name, geolocation, device fingerprints) and how they connect (or don’t) to individual users.*

Rivas, “Meet the undocumented students who got the Library of Congress to ditch ‘illegal aliens’” <http://fusion.net/story/286753/library-of-congress-drops-illegal-alien-thanks-to-students/>

Ockerbloom, “Categorizing people without marginalizing them.” <http://everybodyslibraries.com/2013/04/29/categorizing-people-without-marginalizing-them/>

McKenzie, “Falsehoods programmers believe about names.” <http://www.kalzumeus.com/2010/06/17/falsehoods-programmers-believe-about-names/> (Read this for why names are very, very poor identifiers.)

Flood, “What happens when Google doesn’t think you’re a human.” <http://www.buzzfeed.com/joeflood/what-happens-when-google-doesnt-think-youre-a-human>

Hardesty, “Privacy challenges.” <http://newsoffice.mit.edu/2015/identify-from-credit-card-metadata-0129>

Notenboom, “What’s the difference between a MAC address and an IP address?” [https://askleo.com/whats\\_the\\_difference\\_between\\_a\\_mac\\_address\\_and\\_an\\_ip\\_address/](https://askleo.com/whats_the_difference_between_a_mac_address_and_an_ip_address/)

“How DNS works” <https://howdns.works/> (read the whole thing!)

Nikiforakis and Acar, “Browser Fingerprinting and the Online-Tracking Arms Race” <http://spectrum.ieee.org/computing/software/browser-fingerprinting-and-the-onlinetracking-arms-race>

Hill, “Facebook is using your phone’s location to suggest new friends—which could be a privacy disaster” <http://fusion.net/story/319108/facebook-phone-location-friend-suggestions/>

Gallagher, “Where’ve you been? Your smartphone’s wi-fi is telling everyone.” <http://arstechnica.com/information-technology/2014/11/where-have-you-been-your-smartphones-wi-fi-is-telling-everyone/>

### **Week 6: Controlled vocabularies; tagging and folksonomies; recommender systems**

*Learning objectives: What is a controlled vocabulary, and who controls it? What is a thesaurus/taxonomy, and how does it work? Stopwords and stemming. What is tagging? How does tagging lead to a folksonomy? What are the strengths and*

*weaknesses of controlled vocabularies and folksonomies? How recommender systems build and use categories. Privacy and probity implications of recommender systems.*

- Leise et al. "What is a controlled vocabulary?" *Boxes and Arrows*. <http://boxesandarrows.com/what-is-a-controlled-vocabulary/>
- "Stopwords in SearchWorks — to be or not to be?" <http://discovery-grindstone.blogspot.com/2011/12/stopwords-in-searchworks-to-be-or-not.html>
- "When tags work and when they don't: Amazon and LibraryThing." <http://blog.librarything.com/thingology/2007/02/when-tags-work-and-when-they-dont-amazon-and-librarything/>
- Neal. "Folksonomies and image tagging: seeing the future?" *ASIST Bulletin*. <http://www.asis.org/Bulletin/Oct-07/neal.html>
- Farhi. "You'll never believe how recommended stories are generated on otherwise serious news sites." [https://www.washingtonpost.com/lifestyle/style/youll-never-believe-how-recommended-stories-are-generated-on-otherwise-serious-news-sites/2014/01/09/ce1ceb34-78bf-11e3-b1c5-739e63e9c9a7\\_story.html](https://www.washingtonpost.com/lifestyle/style/youll-never-believe-how-recommended-stories-are-generated-on-otherwise-serious-news-sites/2014/01/09/ce1ceb34-78bf-11e3-b1c5-739e63e9c9a7_story.html)
- Konstan and Riedl, "Deconstructing recommender systems: how Amazon and Netflix predict your preferences and prod you to purchase." <http://spectrum.ieee.org/computing/software/deconstructing-recommender-systems>
- Rodgers. "In privacy policy refresh, Facebook tells people what its 'people-based' ID can do." <http://adexchanger.com/online-advertising/in-privacy-policy-refresh-facebook-tells-people-what-its-people-based-id-can-do/>
- Singel. "Netflix cancels recommendation contest after privacy lawsuit." <http://www.wired.com/2010/03/netflix-cancels-contest/>

## Unit 4: Database design

### Week 7: Database design 1

*Learning objectives: Spreadsheet use for data/metadata collection. When and why spreadsheets break down for these uses. What is a database? What kinds of databases are there? Entity (table), attribute (column), instance (row). Attribute types. Naming conventions. Primary key as instance (row) identifier.*

*Note: For all lynda.com videos, you are welcome to read the transcript instead of watching the video, if you prefer.*

- Veltman. "SQL: The Prequel (Excel vs. Databases)" <http://schoolofdata.org/2013/11/07/sql-databases-vs-excel/>
- Section 1 "Understanding Databases" in Allardice, "Foundations of programming: databases." <http://www.lynda.com/Access-tutorials/What-databases/112585/121194-4.html?org=wisc.edu>
- "The features of a relational database" in Allardice, "Foundations of programming: databases." <https://www.lynda.com/Access-tutorials/features-relational-database/412845/438417-4.html?org=wisc.edu>
- "Planning your database" in Allardice, "Foundations of programming: databases." <https://www.lynda.com/Access-tutorials/Planning-your-database/412845/438425-4.html?org=wisc.edu>
- "Identifying columns and selecting data types" in Allardice, "Foundations of programming: databases." <https://www.lynda.com/Access-tutorials/Identifying-columns-selecting-data-types/412845/438426-4.html?org=wisc.edu>
- "Choosing primary keys" in Allardice, "Foundations of programming: databases." <https://www.lynda.com/Access-tutorials/Choosing-primary-keys/412845/438427-4.html?org=wisc.edu>

### Week 8: Database design 2.

*Learning objectives: Representing database structures human-readably: entity-relationship diagrams (ERDs). Relationships and relationship cardinality (1:1, 1:M, M:N). Primary and foreign keys. Relational integrity. Decomposing M:N relationships into bridge entities.*

- "Understanding relationship types" in Ippolite "FileMaker Pro 13 Essential Training." <https://www.lynda.com/FileMaker-Pro-tutorials/Understanding-relationship-types/161168/172251-4.html?org=wisc.edu>
- "Defining one-to-many relationships" in Allardice, "Foundations of programming: databases." <https://www.lynda.com/Access-tutorials/Defining-one-many-relationships/412845/438431-4.html?org=wisc.edu>
- "Diagramming relationships with entity-relationship (ER) diagrams" in Ippolite "FileMaker Pro 13 essential training." <https://www.lynda.com/FileMaker-Pro-tutorials/Diagramming-relationships-entity-relationship-ER-diagrams/161168/172252-4.html?org=wisc.edu>
- "Understanding primary and foreign keys" in Wilbert "Office 365: Access essential training." <https://www.lynda.com/Access-tutorials/Understanding-primary-foreign-keys/369043/432137-4.html?org=wisc.edu>
- "Understanding relationship rules and referential integrity" in Allardice, "Foundations of programming: databases." <https://www.lynda.com/Access-tutorials/Understanding-relationship-rules-referential-integrity/412845/438434-4.html?org=wisc.edu>

“Creating junction tables” in Wilbert “Relational database fundamentals.” <https://www.lynda.com/Access-tutorials/Creating-junction-tables/145932/172989-4.html?org=wisc.edu> (note: “junction table” means the same thing as “bridge entity”)

### **Week 9: Database design 3.**

*Learning objectives: SQL queries. COUNT(\*), SUM(\*), and MAX(\*). INNER JOINS.*

“Creating SQL queries” in Allardice, “Foundations of programming: databases.” <https://www.lynda.com/Access-tutorials/Creating-SQL-queries/412845/438442-4.html?org=wisc.edu>

“Structuring the WHERE clause” in Allardice, “Foundations of programming: databases.” <https://www.lynda.com/Access-tutorials/Structuring-WHERE-clause/412845/438443-4.html?org=wisc.edu>

“Using aggregate functions” in Allardice, “Foundations of programming: databases.” <https://www.lynda.com/Access-tutorials/Structuring-WHERE-clause/412845/438443-4.html?org=wisc.edu>

“Joining tables” in Allardice, “Foundations of programming: databases.” <https://www.lynda.com/Access-tutorials/Structuring-WHERE-clause/412845/438443-4.html?org=wisc.edu>

## **Unit 5: Which information is(n't) digital? Digitization, metadata, copyright, and openness**

### **Week 10: US intellectual-property law; international IP treaties.**

*Learning objectives: What kinds of intellectual property does US law recognize? What is copyright? How does someone get a copyright? How long does copyright last? What is (and isn't) in the public domain? What is fair use? What is first sale? How does copyright impact digitized and born-digital materials? “Three strikes” laws. TPP/TTIP and its treaty predecessors.*

Sims, “Copyright Basics.” <https://www.lib.umn.edu/copyright/basics> (please read all sections)

Sims. “Copyright in your personal life.” <http://simsjd.com/copyrightlibn/2013/05/21/copyright-in-your-personal-life/>

DoIT. “Can I just repost that photo online? Probably not.” <https://it.wisc.edu/news/can-i-just-repost-that-photo-online-probably-not>

“A Fair(y) Use Tale.” [https://www.youtube.com/watch?v=CJn\\_jC4FNDo](https://www.youtube.com/watch?v=CJn_jC4FNDo)

Gómez and Keller. “The missing decades: the 20th century black hole in Europeana.” <http://pro.europeana.eu/blogpost/the-missing-decades-the-20th-century-black-hole-in-europeana>

West. “Things that make the librarian angry.” <https://medium.com/message/things-that-make-the-librarian-angry-1d30cd27cf60>

EFF. “How the TPP will affect you and your digital rights.” <https://www.eff.org/deeplinks/2015/12/how-tpp-will-affect-you-and-your-digital-rights>

EFF. “Sneaky change to the TPP drastically extends criminal penalties.” <https://www.eff.org/deeplinks/2016/02/sneaky-change-tpp-drastically-extends-criminal-penalties>

“Well-intentioned practice for putting digitized collections of unpublished materials online.” <http://www.oclc.org/content/dam/research/activities/rights/practice.pdf>

### **Week 11: Digitization basics; digital preservation. MIDTERM.**

*Learning objectives: What is digitization? How are different analog objects typically digitized, and why? Digitization standards. Choosing digitization file formats; “preservation formats” vs “access formats.” Digitization and copyright. What is digital preservation? What are typical risks to digital materials, and how can they be protected against those risks?*

Schonfeld, “Inside the New Museum’s vast, beautiful, and totally insane digitization project.” <http://www.thewire.com/entertainment/2013/07/new-museums-vast-beautiful-and-insane-digitization-project/67567/>

Fleishman, “The sound of silence in the National Library.” <http://boingboing.net/2013/01/09/soundofsilence.html>

State Library of Western Australia. “Creating and keeping your digital treasures: a user guide.” [https://web.archive.org/web/20150331225709/http://slwa.wa.gov.au/\\_\\_data/assets/pdf\\_file/0015/12048/](https://web.archive.org/web/20150331225709/http://slwa.wa.gov.au/__data/assets/pdf_file/0015/12048/)

[Creating\\_and\\_Keeping\\_your\\_Digital\\_Treasures-A\\_User\\_Guide.pdf](#) (pp. 1-10; skimming the glossary encouraged!)

Venkataraman. “The race to preserve disappearing data.” <https://www.bostonglobe.com/ideas/2015/05/16/the-race-preserve-disappearing-data/0KPHAx5iK6jaLIvWQqI140/story.html>

For reference: Digital NZ. “Creating digital content.” <http://www.digitalnz.org/make-it-digital/creating-digital-content>

InterPARES. “Making and maintaining digital materials: guidelines for individuals.” [http://www.interpares.org/ip2/display\\_file.cfm?doc=ip2%28pub%29creator\\_guidelines\\_booklet.pdf](http://www.interpares.org/ip2/display_file.cfm?doc=ip2%28pub%29creator_guidelines_booklet.pdf)

## Week 12: Metadata

*Learning objectives: What is metadata and what does it do? Types of metadata. Dublin Core metadata. Is metadata copyrightable? Who owns it? "Metadata" and surveillance. Personally-identifiable information (PII); reidentification.*

JISC Digital Media, "An introduction to metadata." <http://www.jiscdigitalmedia.ac.uk/infokit/metadata/metadata-home>

Hillmann, "Using Dublin Core." <http://dublincore.org/documents/usageguide/> (Sections 1, 4)

Meyer. "The tragedy of iTunes and classical music." <http://www.theatlantic.com/technology/archive/2015/07/the-tragedy-of-itunes-and-classical-music/399788/> (Read this for what happens when a system models metadata poorly.)

Coyle, "Metadata and copyright." <http://lj.libraryjournal.com/2013/02/opinion/peer-to-peer-review/metadata-and-copyright-peer-to-peer-review/>

Pomerantz. "Thanks to the NSA, the legal definition of 'metadata' will change." <https://medium.com/@jpom/thanks-to-the-nsa-the-legal-definition-of-metadata-will-change-41bbdd228842>

Perry. "You're not so anonymous." <http://news.harvard.edu/gazette/story/2011/10/you%E2%80%99re-not-so-anonymous/>

Jerome. "On why we need to map the de-identification middle ground." <https://iapp.org/news/a/on-why-we-need-to-map-the-de-identification-middle-ground/>

"Big Data is our generation's civil rights issue, and we don't know it." <http://solveforinteresting.com/big-data-is-our-generations-civil-rights-issue-and-we-dont-know-it/>

## Unit 6: Laws, policy, and digital information

### Week 13: DRM, censorship, and Internet regulation

*Learning objectives: What is DRM, and what are its impacts on usability, privacy, security, and digitization/digital preservation? Network neutrality; filtering in schools and libraries and by ISPs. MPAA/RIAA. DMCA; use of DMCA to censor.*

Schatz. "Everything you wanted to know about net neutrality." <http://recode.net/2014/05/15/net-neutrality-qa/>

"What does net neutrality mean to the UW?" <https://web.archive.org/web/20150419065324/https://www.doit.wisc.edu/news/net-neutrality-mean-uw/>

Bayliss. "CIPA at 10: Internet filtering excessive, study finds." <http://www.thedigitalshift.com/2014/02/k-12/cipa-10-internet-filtering-excessive-study-finds-ala-midwinter-meeting/>

Doctorow. "What happens with digital rights management in the real world?" <http://www.theguardian.com/technology/blog/2014/feb/05/digital-rights-management>

Mullin. "Hollywood v. Goliath: inside the aggressive studio effort to bring Google to heel." <http://arstechnica.com/tech-policy/2014/12/how-hollywood-spurned-by-congress-pressure-states-to-attack-google/>

Smith. "Conspiracy theories, copyright term, and the TPP." <http://blogs.library.duke.edu/scholcomm/2015/08/17/conspiracy-theories-copyright-term-and-the-tp/>

Trendacosta. "The DMCA: how it works and how it's abused." <http://io9.com/the-dmca-how-it-works-and-how-its-abused-1616830093>

Scheid. "Copyright as an instrument for censorship?" <http://library.osu.edu/blogs/copyright/2015/07/29/copyright-as-an-instrument-for-censorship/>

### Week 14: Surveillance of digital-information use

*Learning objectives: How user tracking on the Internet works. Geolocation and tracking. Marketing, "data brokers," and tracking. Tracking and usability. Malvertising. "Learning analytics" and privacy. How the National Security Agency surveils the Internet; its legal defenses. How many world governments surveil one another's citizens. Civil unrest and the Internet.*

Kamenetz, "What parents need to know about big data and student privacy." <http://www.npr.org/blogs/alltechconsidered/2014/04/28/305715935/what-parents-need-to-know-about-big-data-and-student-privacy>

"OK Google: where do you store recordings of my commands?" <http://www.npr.org/sections/alltechconsidered/2015/10/29/451981811/ok-google-where-do-you-store-recordings-of-my-commands?sc=tw>

Schneier, "Finding people's locations based on their activities in cyberspace." [https://www.schneier.com/blog/archives/2014/02/finding\\_peoples.html](https://www.schneier.com/blog/archives/2014/02/finding_peoples.html)

Salmon. "Ad tech is killing the online experience." <http://www.theguardian.com/media/2015/jul/19/ad-tech-online-experience-facebook-apple-news>

Rashid, "Surveillance is the business model of the Internet: Bruce Schneier." <http://www.securityweek.com/surveillance-business-model-internet-bruce-schneier>

Electronic Frontier Foundation. "EFF's game plan for ending global mass surveillance." <https://www.eff.org/deeplinks/2015/01/effs-game-plan-ending-global-mass-surveillance> (Just the introduction, not the game plan.)  
Center for Media Justice. "The digital culture shift: from scale to power." [http://centerformediajustice.org/wp-content/uploads/2015/08/digital\\_culture\\_shift\\_report.pdf](http://centerformediajustice.org/wp-content/uploads/2015/08/digital_culture_shift_report.pdf) (pp 4-14, 50-54; reading the rest encouraged!)

## **Week 15: "Big data" and privacy. Protecting your security and privacy on the Internet (of Things)**

*Learning objectives: Passwords/passphrases. Encryption; HTTPS. Adblockers. Tracking blockers. VPNs. The Onion Router (TOR). Privacy on mobile devices. Privacy and the Internet of Things. What is "big data," why is it important, and who has it? "Big data" and privacy. De/reidentification.*

Peterson. "Erasing yourself from the Internet is really, really hard." <http://fusion.net/story/175594/erasing-yourself-from-the-internet-is-really-really-hard/>  
"Bruce Schneier on privacy and the data free-for-all." <http://www.wired.com/brandlab/2015/05/bruce-schneier-privacy-data-free/>  
Cunningham. "Keep it secret, keep it safe." *ars technica*. <http://arstechnica.com/security/2013/01/keep-it-secret-keep-it-safe-a-beginners-guide-to-web-safety/>  
Cunningham. "Phone and laptop encryption guide: protect your stuff and yourself." <http://arstechnica.com/gadgets/2015/08/phone-and-laptop-encryption-guide-protect-your-stuff-and-yourself/>  
"How encryption works in your web browser." <http://www.wimp.com/howencryption/>  
Electronic Frontier Foundation. "Encrypt-the-web report." <https://www.eff.org/encrypt-the-web-report>  
Lee. "Passphrases that you can memorize but that even the NSA can't guess." <https://firstlook.org/theintercept/2015/03/26/passphrases-can-memorize-attackers-cant-guess/>  
Lambert. "The basics of using a proxy server [VPN] for privacy and security." <http://www.techrepublic.com/blog/it-security/the-basics-of-using-a-proxy-server-for-privacy-and-security/> (UW-Madison has its own VPN! It's free to students, faculty, and staff! You should use it! <http://www.doit.wisc.edu/network/vpn/>)  
Tor Project. "Tor Animation." <https://www.youtube.com/watch?v=JWII85U1zKw>  
Griffin. "Google search history can now be downloaded in its entirety, mass embarrassment expected." <http://www.independent.co.uk/life-style/gadgets-and-tech/news/google-search-history-can-now-be-downloaded-in-its-entirety-mass-embarrassment-expected-10189834.html>