LIS 768
Digital Humanities Analytics

Information School
University of Wisconsin-Madison
Spring 2019

Instructor: Dorothea Salo (please call me "Dorothea")
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Office hours: M T 8-9 am or by appointment
Course URL: https://canvas.wisc.edu/courses/142682
Special course attributes: iSchool Tier T
Course modality: Face-to-face

Introduction

Course description

Students completing this course will earn three credit hours. One credit is the learning that takes place in at least 45 hours of learning activities, which include time in lectures or class meetings, in person or online, labs, exams, presentations, tutorials, reading, writing, studying, preparation for any of these activities, and any other learning activities.

In this course students learn and apply introductory technology skills to analyze and plan data-driven projects in the humanities, social sciences and other fields. Topics include identifying relevant existing digitized materials, web scraping, text encoding, topic modeling, mapping, social network analysis, and other approaches for collecting, analyzing and visualizing data. An introduction to Python is a key part of this course, which employs hands-on activities and collaboration with campus researchers to give students the tools they need to explore exciting new approaches to research and outreach using primary sources.

Upon completion of this course, students will be able to:

- Understand and discuss critically the development of the DH field, research trends and institutional structures, including issues of diversity and barriers to access
- Plan for acquisition of textual data for digital humanities research via digitization, optical character recognition, transcription, web scraping and other methods
- Use a variety of current tools used in the DH field in 5 major areas:
  - productivity and communication
  - acquiring textual data
  - cleaning textual data
  - processing and interpreting textual data
  - information visualization
- Use and evaluate a range of current digital humanities online resources and tools
- Communicate effectively about DH with non-experts and experts, using correct terminology

Course Policies

I aim to make this course as accessible as possible to all students. Students seeking accommodations for lecture or assignments must obtain a McBurney Center VISA. For more information, see `https://mcburney.wisc.edu/apply-for-accommodations/`**.**

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`

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 speak up in class; I *will not answer such questions by email*. Please also do your best to assist your classmates.

Should you see dead links (it does happen, usually with no notice), weird due dates, or other syllabus problems, please bring them up in class.

I may make changes to assigned readings and activities throughout the semester, and it is always possible that I can make errors. In cases where the course Canvas site differs from this syllabus (e.g. readings for a module have changed, or an assignment deadline is different), students should assume that the course Canvas site is correct. Always check Canvas when planning your work.

Textbooks and software

There is one assigned textbook for this course:

- Milligan, I., Weingart, S., & Graham, S. (2015). *Exploring big historical data : the historian's macroscope*. London: Imperial College Press. (referred to as Macroscope below)

We will also be using several tutorials in:

- Crymble, Adam, Fred Gibbs, Allison Hegel, Caleb McDaniel, Ian Milligan, Miriam Posner, Evan Taparata, and Jeri Wieringa, eds (2016). *The Programming Historian*. 2nd ed. `http://programminghistorian.org/`. (Referred to as Programming Historian below)

The following books are on reserve in the iSchool Library:

- Briggs, J. R. (2013). *Python for kids: a playful introduction to programming.* No Starch Press.
- Matthes, E. (2016). *Python crash course: a hands-on, project-based introduction to programming*. No Starch Press.
- Schreibman, S., Siemens, R. G., & Unsworth, J. M. (2016). *A new companion to digital humanities.* Chichester; Malden (MA): John Wiley. (also available as an ebook through the library)
- Warwick, C., & Terras, M. M. (2012). *Digital humanities in practice*. London: Facet. Also available as an ebook through the library.

All other readings can be accessed via links in this document or will be scanned and uploaded to Canvas.

Activities in this class will be conducted using the Mac operating system and the Mac Terminal. If you are unfamiliar with navigating a Mac (especially how to find, move and save files), please refer to this Lynda course:

- Mac OS X El Capitan Essential Training, `https://www.lynda.com/Mac-OS-tutorials/macOS-Mojave-Essential-Training/734630-2.html?org=wisc.edu` Especially useful: Chapter 2: "Finder: The Macintosh Filing Cabinet" and Chapter 4: "The Dock, Launchpad and Mission Control: Launching and Managing Applications."

Additional reference resources for Mac OS, Python and Terminal will be posted on Canvas.

Assignments and grading

A 94 – 100: Outstanding achievement. Student performance demonstrates full command of course materials and evinces a high degree of originality and/or creativity that far surpasses course expectations.

AB 88 – 93 Very good achievement. Student performance demonstrates thorough knowledge of course materials and exceeds course expectations by completing all course requirements in a superior manner.

B 82 - 87 Good work. Student performance meets designated course expectations, demonstrates understanding of the course materials, and performs at an acceptable level.

BC 77 - 81 Marginal work. Student performance demonstrates incomplete understanding of course materials. 72-76 Unsatisfactory work and inadequate understanding of course materials.

Assignment	Worth	Total	Due date
Labs	5% each	40%	varies
How did they make that?		10%	Week 6
Conference review		10%	Week 7
Final project		40%	Week 14

Assignment policy

All assignments are due to Canvas by 9:00 a.m. on the day of class, unless otherwise noted. For group assignments, one group member should turn it in, and all group members' names should appear on it. If you experience problems with Canvas and you are not sure whether your work has been submitted to the system, please email me your work as soon as possible. Canvas

problems will not be accepted as an excuse for late work. Late assignments will be excused without penalty in the case of serious illness in self or family, bereavement and other emergencies: please contact me as soon as possible in these cases, but please look after self and family first!

Toolkit Homework

Instructions for homework will be given in class based on relevant course themes and student needs and interests. Homework will be due to the Dropbox at the beginning of class the following week. Expect to spend time outside of class time building your Digital Humanities Toolkit by practicing skills in Terminal, Unix, and Python, and making things with tools such as Zotero, Voyant Tools, Palladio, StoryMap, Google Fusion tables, and others.

There will be 8 homework assignments, with each graded out of 5 points. You may collaborate and help each other (in fact, you are encouraged to do so!), but you must submit your homework individually.

Conference Review

Due: 9am, Monday of Week 7

You will select a conference or training institute where Digital Humanities approaches are explored, and explore the presentations and other events at this conference. You will prepare a review of the conference (approx. 1000-1500 words) accompanied by an annotated bibliography. Your aim will be to

a) discover current digital humanities work that is relevant to the research problem and/or techniques you plan to explore in your final analytics project, and prepare an annotated bibliography of at least ten sources relevant to your project. You might discover sources directly through the conference review (e.g. slides or handouts from conference presentations) or indirectly (e.g. by searching for work by a conference presenter that interests you, and discovering a journal article or blog post).

b) synthesize and describe major themes and trends exemplified in the conference, contextualizing them within course material so far

c) assess and comment on what you learned from the conference about diversity and power structures in the digital humanities field. You may choose to comment on language, nationality, race, ethnicity, gender, socioeconomic status, institutional affiliation, academic discipline and other themes.

"How Did They Make That?" Blog Post and Lightning Talk

Due: 9am, Monday of Week 6

You will work in pairs to explore an online resource created by a digital humanities project team, and follow the method outlined by Miriam Posner (discussed in Week 2) to answer the question "How Did They Make That?" Present your findings to the class in a "blog post" to Canvas and a conference-style lightning talk (five minutes! no longer! slides OR slideless both okay, but I ask for NO LIVE DEMOS please) during Week 6's class. Some additional research beyond the resource itself will be required (e.g. journal articles, blog posts, Twitter, conference presentations). The chosen resource must a) be created by a team of several individuals b) based (at least in part) at a university (or universities) c) to research and/or communicate about a humanities question. Please confirm your choice of target project by Week 4.

Key Questions: What was the main research question or goal behind this project? What sources and/or data are used in this resource? How were the sources processed? What problems or challenges did the research team run into, and what did they do about them? How have the project participants communicated and presented their materials and/or analysis?

(Part of the goal of this assignment is to help your colleagues choose and work through their final projects. Communicate accordingly, please! What would it help your colleagues to know about this project?)

Final Analytics Project

You will work in small groups of 2 or 3 students to identify a humanities research question that you have already studied formally through undergraduate or graduate coursework. For example, you may choose to focus on the topic of a favorite research paper. You will then use tools and techniques we learn about it in this class to explore the same research question in new ways. For example, you may wish to analyze a collection of texts using text mining and topic modeling techniques, or create a series of interactive maps, or create a network visualization, or encode a key text in TEI, etc.

Interim deliverables (due by class start unless otherwise noted):

- Teams chosen: Week 3 (in class)

- "Brainstorm" of possible project topics: Week 5
- Team Compact (http://www.leadingvirtually.com/virtual-team-tools-team-compact/) signed by all team members: Week 5
- Annotated bibliography exploring relevant secondary literature as part of your conference review assignment: Week 7 (See above. N.b. this is an individual, not a team, assignment; this increases relevant conference coverage within your group.)

Final deliverables:

Your final product from the project will depend on the research question and approaches, but you will turn in a written report OR conference-style poster that:

- demonstrates the use of at least three tools and techniques, and
- justifies and documents your use of the tools.

Teams will also present their results in the last week of class. This presentation should be in lightning-talk/Pecha-Kucha form, as though you were part of a pre-poster-session lightning-talk session. (These are actually fairly common, so it's worth getting to grips with the form!) You have the standard Pecha Kucha time limit of six minutes forty seconds, though if you choose to use slides I will not enforce the twenty slides / twenty-seconds-per-slide rule. I WILL CUT YOU OFF IF YOU GO LONG, and doing so will mean an automatic two-point deduction from your grade. (Conferences are no more lenient about this than I am. Going long is rude. Don't do it.) Ending faster is fine!

Course schedule

Please come to class (except the first, for obvious reasons) prepared to discuss the readings assigned for that week/module. Having questions to ask about the readings absolutely counts as coming prepared!

Unit 1: Context and prerequisites

Module 1: Intro to DH and Course

Learning Objectives: Definition of DH, course structure and expectations, Zotero, events on campus, how to ask questions, where to find answers, role of social media

Posner, M. (2013, August 29). How did they make that? http://miriamposner.com/blog/how-did-they-make-that/

Posner, M. (2014, April 17). How Did They Make That? The Video! http://miriamposner.com/blog/how-did-they-make-that-the-video/

Module 2: What Your Computer Can (and can't) do for you: Big Humanities Data and the Command Line

Learning Objectives: history and development of DH, major journals and reference resources, Terminal, asking questions about your data, GREP, Bookworm, Google Ngram Viewer

Macroscope, "Preface."

Macroscope, Chapter 1: The Joys of Big Data for Historians. p. 1-36.

Milligan, I., & Baker, J. (2014). Introduction to the Bash Command Line. In Programming Historian.

Underwood, Ted. (2015, June 4). Seven ways humanists are using computers to understand text. Retrieved from https://tedunderwood.com/2015/06/04/seven-ways-humanists-are-using-computers-to-understand-text/

Optional:

CodeAcademy. Learn the Command Line. https://www.codecademy.com/ru/courses/learn-the-command-line/ OR, if you prefer, "The UNIX Shell," https://librarycarpentry.org/lc-shell/

Klingenstein, S., Hitchcock, T., & DeDeo, S. (2014). The civilizing process in London's Old Bailey. Proceedings of the National Academy of Sciences, 111(26), 9419–9424.

Baker, J., & Milligan, I. (2014). Counting and mining research data with Unix. In Programming Historian.

Ramsay, S. (2010). The Hermeneutics of Screwing Around; or What You Do with a Million Books. Unpublished Presentation delivered at Brown University, Providence, RI, 17. http://www.playingwithhistory.com/wp- content/uploads/2010/04/hermeneutics.pdf

Module 3: Who does DH? Who doesn't?

Learning Objectives: diversity (or lack thereof) in the field: gender, race, geography, research area, etc., tenure, digital humanities centers, role of the library/archives and librarian/archivist, Paper Machines.

Weingart, S. (2015, June 25). Acceptances to Digital Humanities 2015 (part 2). Retrieved January 21, 2016, from http://www.scottbot.net/HIAL/?p=41347

Caswell, M. "'The Archive' Is Not an Archives: On Acknowledging the Intellectual Contributions of Archival Studies." Reconstruction: Studies in Contemporary Culture, 16:1 (2016). https://escholarship.org/uc/item/7bn4v1fk

And at least one of the following:

Diversity in DH @THATCamp. (2011, January 11). Toward an Open Digital Humanities. THATCamp SoCal 2011. https://goo.gl/KhPeqb

Grandjean, M. (2016). A social network analysis of Twitter: Mapping the digital humanities community. Cogent Arts & Humanities, 3(1), 1171458. https://doi.org/10.1080/23311983.2016.1171458.

Lothian, A. (2011, January). THATCamp and diversity in Digital Humanities. http://www.queergeektheory.org/2011/01/thatcamp-and-diversity-in-digital-humanities/

Morgan, P. (2016, July 29). Not Your DH Teddy-Bear; or, Emotional Labor is Not Going Away. http://acrl.ala.org/dh/2016/07/29/not-your-dh-teddy-bear/

Sherratt, T. (2012). It's All About the Stuff: Collections, Interfaces, Power, and People. Journal of Digital Humanities. 1(1). http://journalofdigitalhumanities.org/1-1/its-all-about-the-stuff-by-tim-sherratt/

Vandegrift, M., & Varner, S. (2013). Evolving in Common: Creating Mutually Supportive Relationships Between Libraries and the Digital Humanities. Journal of Library Administration, 53(1), 67–78. http://doi.org/10.1080/01930826.2013.756699

Module 4: Introduction to Programming with Python

Defining programming, why Python, basic Python syntax (learn to love the tab), reading Python documentation, if/else/elif, for loops, functions, libraries, modules, string manipulation, starting at 0, object types

Part 1 "Programming Basics" and Part 14 "Exploring the Languages" in Allardice, S. Programming Basics. Foundations of Programming: Fundamentals. Lynda.com. https://www.lynda.com/JavaScript-tutorials/Foundations-of-Programming-Fundamentals/83603-2.html?org=wisc.edu (The entire course is over 4 hours long, but you are assigned to watch only 2 sections, totaling about 40 minutes of content. Of course, you are free to watch the rest of the course, but the examples given in other sections are in JavaScript, not in Python.)

Module 5: Acquiring Data: Digitization and its Limits

The great unread and the canon, unstructured vs. semi-structured vs. structured data, digitization workflows, transcription, OCR, vendors, copyright, open source, bias in digitization choices, non-standard fonts and scripts, the problem of facsimiles, crowdsourcing, collation, Juxta, TypeWright

Macroscope, Chapter 2: "The DH Moment." 37-72.

Cohen. "Initial thoughts on the Google Books NGram Viewer and datasets." https://dancohen.org/2010/12/19/initial-thoughts-on-the-google-books-ngram-viewer-and-datasets/ (Follow some links. Ask yourself: what should the culturomicists have done better? See also Pechenick et al. "Characterizing the Google Books corpus" https://doi.org/10.1371/journal.pone.0137041)

Causer, T., Tonra, J., & Wallace, V. (2012). Transcription maximized; expense minimized? Crowdsourcing and editing The Collected Works of Jeremy Bentham. Literary and Linguistic Computing, 27(2), 119–137. http://dx.doi.org/10.1093/llc/fqs004

Riedel, D. (2016). Of Making Many Copies There is No End: The Digitization of Manuscripts and Printed Books in Arabic Script. In The Digital Humanities and Islamic & Middle East Studies (pp. 65–92). Berlin/Boston: De Gruyter. Retrieved from http://ebookcentral.proquest.com/lib/wisc/detail.action?docID=4459588

Smith, R. (2015). Human Selection and Digitized Archival Collections: an Exploratory Research Project About Choice of Archival Materials Digitized for Online Public Availability. Theses and Dissertations. Retrieved from https://dc.uwm.edu/etd/1101

Optional:

Dryden, J. (2014). The Role of Copyright in Selection for Digitization. The American Archivist, 77(1), 64–95. https://doi.org/10.17723/aarc.77.1.3161547p1678423w

Module 6: DH Project Case Studies

The DH project lifecycle, annotation as method, data management, funding, staffing, identifying users, communication and marketing, user experience, user testing

Dombrowski. "What ever happened to Project Bamboo?" https://www.rd-alliance.org/system/files/filedepot/136/Lit%20Linguist%20Computing-2014-Dombrowski-llc-fqu026.pdf (This is the single best, most honest screwup analysis in DH history.)

"A Brief History of Digital Mappa". https://dmprojectsite.wordpress.com/

"Showcase Projects". https://dmprojectsite.wordpress.com/cool-projects/

Morgan, P. (2014, June 5). How to get a digital humanities project off the ground. http://www.paigemorgan.net/how-to-get-a-digital-humanities-project-off-the-ground/

Warwick, C. (2012). Studying users in digital humanities. In *Digital humanities in practice*. London: Facet Publishing in association with UCL Centre for Digital Humanities. Available as an ebook here: https://search.library.wisc.edu/catalog/9910217113002121

Yost, G. (2016). Make Design Decisions With a Purpose. UX Booth. http://www.uxbooth.com/articles/make-design-decisions-with-a-purpose/

Module 7: From Screen to Dataset: Web Scraping

Automated downloading, APIs, web scraping, abstraction, document object model, Beautiful Soup, normalization, tokenization, social media as source

Macroscope, Chapter 2: "The DH Moment." 37-72. (again)

Turkel, William J., and Adam Crymble (2012). Understanding Web Pages and HTML, Code Reuse and Modularity in Python, Downloading Web Pages with Python, From HTML to List of Words (part 1), From HTML to List of Words (part 2), Manipulating Strings in Python, "Normalizing Textual Data with Python. In Programming Historian.

"Preface" in Mitchell, R. (2015). Web scraping with Python: collecting data from the modern web. Sebastopol: O'reilly Media.

Summers. "Twitter archiving, or 'twarc.'" https://github.com/hist3907b-winter2015/module3-wranglingdata/blob/master/twarc.md

Chiauzzi and Wicks. "Digital trespass: user agreement violations by researchers accessing an online community." http://preprints.jmir.org/preprint/11985

Optional/for further exploration:

McDaniel, Caleb (2014). Data Mining the Internet Archive Collection. In Programming Historian. Wieringa, Jeri (2012). Intro to Beautiful Soup. In Programming Historian.

Bail. "Screen-scraping in R." https://cbail.github.io/textasdata/screenscraping/rmarkdown/Screenscraping_in_R.html (N.b. there is plenty of useful non-R-dependent information on this page.)

Module 8: Text Mining and Topic Modeling

Topic modeling, bags of words, text frequency, Ngrams, KWIC, wordclouds, Voyant tools, Overview project

Macroscope, Chapter 3. Text mining tools: techniques and visualizations

Macroscope, Chapter 4: Topic-Modeling: A Hands-On Adventure in Big Data

Block, S. (2006). Doing More with Digitization An introduction to topic modeling of early American sources. Common- Place, 6(2). http://www.common-place.org/vol-06/no-02/tales/

Optional, if you want more tutorials:

Brett. "Topic modeling: a basic introduction." Journal of Digital Humanities 2:1 (2012). http://journalofdigitalhumanities.org/2-1/topic-modeling-a-basic-introduction-by-megan-r-brett/

Bail. "Topic modeling." https://cbail.github.io/textasdata/topic-modeling/rmarkdown/Topic_Modeling.html

Module 9: Text Encoding

XML refresher, Text Encoding Initiative (TEI) metadata, why use TEI (and why not), encoding levels, TEI documentation, Oxygen

Mueller, M. (2016, September 20). Whither TEI? The Next Thirty Years | Scalable Reading. Retrieved from https://scalablereading.northwestern.edu/?p=477

Nyhan, J. (2012). Text encoding and scholarly digital editions. In Digital humanities in practice. London: Facet Publishing in association with UCL Centre for Digital Humanities.

TEI Consortium. A very gentle introduction to the TEI markup language. http://www.tei-c.org/Support/Learn/mueller-index.htm

"Guest Editorial: Why Can a Computer Do so Little?" Association for Literary and Linguistic Computing Bulletin 4(1): 1-3.

Module 10: Visualization

Goals and uses of visualization, defining key visualization terms, types of charts, types of hierarchy and tree visualizations, chartjunk, accessibility, choosing the right visualization, cognitive and design factors, StoryMap.js

Macroscope, "Making Your Data Legible: A Basic Introduction to Visualization." 159–94.

and at least one of:

Alexander, E., Kohlmann, J., Valenza, R., Witmore, M., & Gleicher, M. (2014). Serendip: Topic Model-Driven Visual Exploration of Text Corpora. In *Proceedings of the 2014 IEEE Conference on Visual Analytics Science and Technology (VAST)* (pp. 173–182). IEEE.

Hoyt, E., Ponto, K., & Roy, C. (2014). Visualizing and Analyzing the Hollywood Screenplay with ScripThreads. *Digital Humanities Quarterly*, 8(4).

Nowviskie, B., McClure, D., Graham, W., Soroka, A., Boggs, J., & Rochester, E. (2013). Geo-Temporal Interpretation of Archival Collections with Neatline. *Literary & Linguistic Computing*, 28(4), 692–699.

Whitelaw, M. (2015). Generous Interfaces for Digital Cultural Collections. Digital Humanities Quarterly, 9(1). `http://www.digitalhumanities.org/dhq/vol/9/1/000205/000205.html`

Winterer, C. (2012). Where is America in the Republic of Letters? Modern Intellectual History, 9(03), 597 Hira, T. P., & Museum, A. W. M. (.). Gallipoli in Minecraft® learning kit. Retrieved January 25, 2016, from `http://www.aucklandmuseum.com/education/activities-and-competitions/gallipoli-in-minecraft-learning-kit`

Module 11: Named Entities, Metadata, and Data Cleaning

named entity recognition, stopwords, gazetteers, characteristics of humanities data, humanities metadata problems, OpenRefine, normalization

Carlson, S. (2016, February 2). Grateful Data: [A Tutorial About Data Cleaning Using Grateful Dead Data as Examples]. Retrieved January 20, 2017, from `https://github.com/scottythered/gratefuldata`

Crane, G., & Jones, A. (2006). The challenge of Virginia Banks: an evaluation of named entity analysis in a 19th-century newspaper collection. In Proceedings of the 6th ACM/IEEE-CS Joint Conference on Digital Libraries, 2006. JCDL '06 (pp. 31–40).

Messer-Kruse, T. (2016). Racial Proxies in Daily News: A Case Study of the Use of Directional Euphemisms, 10(4). Retrieved from `http://www.digitalhumanities.org/dhq/vol/10/4/000273/000273.html`

Optional/For Further Exploration:

Crymble, A. (2015). Using Gazetteers to Extract Sets of Keywords from Free-Flowing Texts. In Programming Historian.

Module 12: Network Analysis

Defining networks, types of networks, extracting network data, Gephi, NodeXL, when not to use networks

In-class activity: NodeXL Tutorial; other activities and readings depending on student interests

Macroscope, "Network Analysis." 195–234.

Warren, C. N., Shore, D., Otis, J., Wang, L., Finegold, M., & Shalizi, C. (2016). Six Degrees of Francis Bacon: A Statistical Method for Reconstructing Large Historical Social Networks, 10(3). Retrieved from `http://www.digitalhumanities.org/dhq/vol/10/3/000244/000244.html`

Module 13: Lab Week for Work on Projects

Module 14: Analytics Project Presentations

iSchool OLD learning outcomes

iSchool learning outcomes	Course measurable outcomes	Assessment of outcomes
1a. Students apply key concepts with respect to the relationship between power, knowledge, and information.	Understand and discuss the development of DH field, research trends, institutional structures, including issues of diversity and barriers to access	Class discussion on Diversity in DH, and Conference Review assignment will require students to examine and analyze inequalities (gender, race, geography) and role of institutions (including tenure system, research centers, and libraries) in the digital humanities field
3a. Students organize and describe print and digital information resources	Plan for acquiring textual data for digital humanities research via digitization, optical character recognition, transcription, web scraping and other methods	Homework assignment requiring students to create TEI metadata for a document according to TEI Lite Guidelines Homework related to Python web scraping : understand underlying organization of HTML web pages and other sources of textual data
3d. Students understand and use appropriate information technologies	Use a variety of current tools used in the DH field in 4 major areas: productivity and project management acquiring textual data, processing and interpreting textual data, and information visualization.	All homework assignments require students to understand and use appropriate information technologies Analytics Project: demonstrate understanding of appropriate information technologies by choosing technology options to fulfill project goal Analytics Project: Apply chosen technologies to chosen research problem
3b. Students search, select, and evaluate print and digital information resources for the use of others	Use and evaluate a range of current digital humanities online resources	In-class usability analysis will require students to analyze potential audiences for an online DH resource, and critique help materials and documentation provided for potential users

iSchool learning outcomes	Course measurable outcomes	Assessment of outcomes
4b. Students demonstrate good oral and written communication skills	Communicate effectively about DH with non- experts and experts, including use of correct terminology	Conference Review requires effective synthesis and summary of large quantity of materials, and identification and correct definition of DH terminology. Final Project Report requires effective oral and written communication about complex DH research problem and application of tools and technologies to the problem. Homework assignments require ability to write clearly and concisely about how technology was applied to hands-on scenarios.
4a. Students participate effectively as team members to solve problems	Working as part of a team, identify an existing research problem in the humanities, identify relevant datasets and tools, and use new DH Analytics skills and technologies to analyze datasets and present findings and interpretations	Final Analytics Project: Working as a team, solve problem of how to apply DH tools and techniques to existing research problem or question Homework assignments and in-class exercises: students help each other to solve technology problems and find answers to questions

iSchool NEW learning outcomes

iSchool learning outcomes	Course measurable outcomes	
1. Students demonstrate understanding of societal, legal, policy or ethical information issues. 7. Students demonstrate understanding of issues surrounding marginalized communities and information.	Understand and discuss the development of DH field, research trends, institutional structures, including issues of diversity and barriers to access	Class discussion on Diversity in DH, and Conference Review assignment will require students to examine and analyze inequalities (gender, race, geography) and role of institutions (including tenure system, research centers, and libraries) in the digital humanities field
2. Students apply principles of information organization.	Plan for acquiring textual data for digital humanities research via digitization, optical character recognition, transcription, web scraping and other methods	Homework assignment requiring students to create TEI metadata for a document according to TEI Lite Guidelines Homework related to Python web scraping : understand underlying organization of HTML web pages and other sources of textual data

iSchool learning outcomes	Course measurable outcomes	
5. Students demonstrate competency with information technologies important to the information professions.	Use a variety of current tools used in the DH field in 4 major areas: productivity and project management acquiring textual data, processing and interpreting textual data, and information visualization.	All homework assignments require students to understand and use appropriate information technologies Analytics Project: demonstrate understanding of appropriate information technologies by choosing technology options to fulfill project goal Analytics Project: Apply chosen technologies to chosen research problem