

Wesleyan's Digital and Computational Knowledge Initiative
2014-15 Courses



[DACKI](#) courses are designed to provide students with an introduction to some of the most engaging issues and methods in contemporary life. They are one place where computer power and liberal arts curiosity combine.

Looking at the list below, you'll find courses that provide introductions to important analytic software for data and statistical analysis. There are courses that bridge disciplines with big questions. Some consider answers through big data and its analysis, while others teach and explore through linking data to geography (GIS) or to network structures. Other courses will seem more conventional except when it comes to doing assignments where traditional papers and exams will work alongside digitally rich outputs--webpages, the art of social media, advanced visualization methods, and making and parsing images.

Digital and computational courses are good ones to put in the mix of your liberal arts education. Give one a try.

For full course descriptions, go to [wesmaps](#) (or follow the links below available).

- *FALL 2014*
 - [Can Machines Think? \(Logic and Computation\)](#) (CS 131-Lipton)
 - This course will address the question of machine reasoning and its scope through the perspective of computation and logic. We will start by studying the elements of mathematical logic, and will learn how to code in the ML programming language so we can approach the issues of automated deduction from both a technical and philosophical perspective. The course will also include extensive readings on consciousness and on the capabilities and limits of computation. First year seminar.
 - [Digging the Digital Era: A Data Science Primer](#) (QAC 211)
 - The course introduces students to the practice of what has come to be known as data science. We describe how "big data" analysis

affects both business practices and public policy, and discuss applications in different areas/disciplines. We also discuss the ethical, legal, and privacy dimensions of "big data" analysis. We work on data acquisition and management and introduce appropriate programming and data management tools. Finally, we concentrate on basic analytical and visualization techniques as we explore and understand the emerging patterns. Students will also engage in a semester-long project where they will access and use data from social media (Twitter) to address their own research questions. Open to all class years.

- Proseminar: Network Analysis (QAC 239-Beveridge et al.)
 - A combined faculty-centered seminar that explores the rudiments of network analysis. Details forthcoming.
- [The Acceleration of Europe: Mobility and Communication, 1000-1700](#) (CHUM 267-Shaw)
 - This is a research course exploring the thesis that during the Middle Ages Europeans began to move faster, to move more often, and by doing so transformed the nature of social life, cultural life, and the character of selves and minds in the world. This course will expose students to methods and skills in the digital humanities such as network analysis, Geographic Information systems, and database analysis in an experimental, humanities lab structure. Open to sophomores and up.
- [Taped in Front of a Live Audience](#)--next year's version to post soon (CHUM 308) K. Brewer-Ball
 - In this class students will explore how the temporality of audience plays into the production and reception of a given work of art or literature. We will explore the generative confluence of liveness and mediation and ask how might this simultaneity of allow us to imagine multiple audiences and intentions for a given work of art, literature, performance, or film? We will also explore the question of the live studio audience in terms of new media technologies and platforms. How might we understand the "live audience" of new media wherein virtual or digital media is often figured as timeless and permanent? Students will be introduced to a range of contemporary media and performance sites in which to ground our audience inquiries.
- [Working with Python](#) .25 credit (QAC 155)
 - The course introduces students to programming, data management and analysis in the programming language Python. The emphasis is on data exploration and visualization and includes work with unstructured data generated by social media interactions.

- [Working with Mathematica](#) .25 credit (QAC 153)
 - The course introduces students to Mathematica's computing environment and all the basic features of the software. Students will be introduced to graphics and visualization, mathematical computations, and will learn through a series of hands-on lab exercises to use the Mathematica programming language for modeling and data analysis.
- [Working with Stata](#) .25 credit (QAC 158)
 - The course introduces students to programming, data management and analysis with Stata. Through a series of hands on lab exercises students learn to work with a variety of data formats and use Stata's programming capabilities to effectively manage and analyze their data, with an emphasis on data exploration and visualization.
- *SPRING 2015 (for details, follow links or go to [Wesmaps!](#))*
 - [Introduction to Modeling: From Molecules to Markets](#) (PHYS 221-Starr)
 - [Science in the Making: Thinking Historically About Science](#) (HIST-Erickson)
 - Network Analysis: An Introduction (QAC)
 - [Medieval History](#) (HIST 201-Shaw)
 - Big Data and Economic Analysis (ECON 282-Hogendorn)
 - Digital History (HIST 211)
 - [Introduction to \(Geo\)Spatial Data Analysis and Visualization](#) (QAC 231-Diver)
 - Coming Soon: Digitally enhanced art history course
 - [Digital Humanities: Intellectual Encounters in the 21st Century](#) (CHUM 346-Kleinberg)
 - Working with Matlab .25 credit (QAC 154)
 - [Working with R](#) .25 credit (QAC 156)
 - [Working with SAS](#) .25 credit (QAC 157)