

Web Development
CSCI-GA.1122
Spring, 2018: [Professor Joshua Clayton](#)

Course description:

This course uses a project-based learning approach towards the study of web technologies and web programming. Students study the principles of web design and each student builds one or more interactive websites based on content relevant to his/her scholarly interest in the humanities or social sciences.

Prerequisite: *Introduction to Programming*; by passing a placement test; or by consultation with a program advisor (send email to digitalhumanities@nyu.edu).

Sample Projects

Introduction: Students begin by building and publishing a 6-10 page website on the topic of their choice including hyperlinks among the pages, hyperlinks to external sites, lists, images and textual content. Students augment the site using a unified CSS theme and layout as well as with multi-media.

Frameworks: Students use Twitter Bootstrap or similar framework to build an original website with a customized theme. Students use jQuery functions to augment the site. These sites could focus on an archival collection; the evolution of performances and productions of a specific opera or composer; the work of a poet; or narratives to complement a museum exhibition of artefacts.

Sample Text Project: Students build a website to create an interactive text with your reader(s). Students use original forms to capture the reader's answers and then programmatically use the reader's input to generate prose. The format of the output along with images and sound files would reflect the user's selections and the underlying narrative structure chosen by the student.

Sample Template Project: Students use PHP, JavaScript, HTML and CSS to build a template and the corresponding programs to render information in a coherent form. For example, using a copyright free version of a 19th century novel, a student might write PHP scripts to dynamically render a template and user interface to allow the user to navigate through the entire tome, chapter by chapter, to facilitate an on-line reading experience. Another student might prefer to create a project to dynamically render poll results in a presidential election over the course of the election; dynamically render geographical information relevant to some environmental issue (change in ice caps over a year or a century, loss of land to the sea over a long period of time, the movement of an oil spill over the course of several days); or dynamically render geographical data on violence or territory controlled in a civil war by day or week.

Content Management Systems: Students build a content management system application on the content of their choice using Drupal. This project could complement a real or virtual museum exhibit by including images, narrative, meta-data, related audio and/or media files that inform the view about the items in the collection. Another student could build out this project as a crowd-sourcing tool for readers to annotate a 19th century text. Other sample projects could include a repository for textual analysis results from a variety of sources regarding a specific corpus or several corpora; or a teaching tool for a literature-based course that is taught in several languages

This course focuses on popular web technologies and programming. Students will develop interactive, secure and powerful projects for the World Wide Web using both client and server side technologies. The course begins with an in-depth look at the mark-up languages that form the foundations of building web sites with a study of HTML and CSS. Students next study programming in JavaScript and create client side dynamic and interactive content for the World Wide Web, followed by a study of server-side programming using PHP. Finally students will have the opportunity to install, configure and customize an implementation of a Content Management System (CMS) that is tailored to each student's field of study in the humanities or social sciences. Throughout the semester, the course will address issues specific to building large websites; incorporating multi-media; building multi-lingual websites and other important aspects of web development that will be relevant to the students' scholarly and professional work in the humanities and social sciences.

Note: As programming languages evolve, the particular languages taught in this course may change.

Format:

The class will meet weekly for 2.5 hours, with 1.25 hours allocated to discussion of class readings and 1.25 hours allocated to project-based work. There will be an additional weekly "virtual office hour" wherein students and the instructor can share screens as well as an in-person collaborative office hour in which students can work in small groups with the instructor or a qualified teaching assistant present for assistance.

Students will be expected to read and annotate texts before class, and to ask and answer questions of and from other students before class, using an online learning platform. Classroom interactions will be facilitated with interactive learning software.

Readings:

Byron, Angela and Addison Berry, Nathan Haug, Jeff Eaton, James Walker, Jeff Robbins *Using Drupal: Choosing and Configuring Modules to Build Dynamic Websites* Publisher: O'Reilly Media, 2008.

Duckett, Jon *HTML and CSS: Design and Build Websites* New York: Wiley, 2011.

Duckett, Jon *JavaScript and JQuery: Interactive Front-End Web Development* New York: Wiley, 2014.

Sklar, David *Learning PHP 5* O'Reilly, 2004

Optional Books

Jacobson, Daniel *APIs: A Strategy Guide* O'Reilly: 2012.

London, Kyle *Developing Large Web Applications: Producing Code That Can Grow and Thrive* O'Reilly, 2010.