

Course Information*	Course Title: 95481/95881 Web Application Development Instructor: Dr. Michael Bigrigg (bigrigg@andrew.cmu.edu)
Prerequisites (if applicable)	This course assumes no significant programming exposure, and is more highly structured to support the students that may or may not have a significant programming background. The course, Enterprise Web Development, does assume some previous programming experience, and is less structured, for example it supports more flexibility in the choice of course project. The course content will be different, meaning this is not a subset of that.
Description*	With to the ability to capture everything the users do, web applications are at the front lines of data analytics. Web applications should leverage analytics-based insights to adapt to their users. As such, this course is not simply an introduction to HTML/JavaScript programming. Approaches that we will cover includes the instrumentation of a web page to capture user behavior. We will analyze data indicators as an approach to characterize users. This will allow our development to be driven by the ability to personalize the web application experience. At the same time, the course will detail how the web application is used as input to search and advertising engines which use analytics to drive users, and what to do to optimize results.
Course Materials	Introduction to JavaScript Programming with XML and PHP (Drake) UXPin Web UI Design Patterns 2014 (Not the later editions) The Adaptive Web, Brusilovsky, Kobsa, and Nejdl (Eds.) * None of these books are required and are presented here for reference.
Learning/Course Objectives*	1. Understand the development of a client-side browser based web application including its capabilities and limitations. 2. Develop skills in client-side web application development technologies including HTML, Javascript, and Javascript libraries. 3. Design a web application using web programming patterns based on data analytics to enhance the front end user experience. 4. Create a functioning web application suitable for portfolio presentation.
Grading Scale (Minimal)	A+ 100% B+ 87 - 89% C+ 77 - 79% A 93 - 99% B 83 - 86% C 73 - 76% A- 90 - 92% B- 80 - 82% C- 70 - 72% This is the minimal requirement needed to achieve each grade.
Evaluation Method	50% Quizzes 50% Programming Projects (30% Implementation; 20% Project-based Questions)

Key Topics	Web Design Front End Web Development Web Programming: HTML CSS JavaScript Web Product Patterns: Help, Focus, Personalization Data Analytics
Prerequisite Knowledge	It is assumed that the students would have experience with web products as a consumer. This includes using a web browser and search engines.
Course Relevance	The web browser has become a major platform for application development, and its development is fundamentally different from traditional general purpose programming. This course focuses on the fundamentals of web development using the browser as a platform with a focus on the client-side web application using data analytics.
Course Goals	The development aspect will include HTML, Javascript and Javascript framework, such as jQuery. This is not simply a programming course. A major emphasis is on the use of web programming patterns with data analytics to enhance the front end user experience with established features. The programming will include how to implement these features that are designed specifically for the front-end web, namely to enhance the user experience through personalization. The students will design and develop a web application over the lifetime of the course.
Assessment Structure	There will be one course project, which includes a programming component as well as an examination component. The examination component of the project will be for the demonstration of understanding of the concepts developed during the production of the project. There will be quizzes, designed to reinforce material that was presented as there are concepts that are presented in the class that are not tied to the production of the course programming project artifact, with the weight of an exam.
Learning Resources	The books are used as reference material as needed. There is no assigned reading from the books. The internet is full of useful reference material related to this class, including w3schools, which we will use.
Extra Time Commitments	There are no additional requirements for this class beyond what would be needed to complete assignments.
Course/Topical Outline:	Programming Topics: JavaScript jQuery, and HTML/CSS Analytics: Machine Learning, Indicators, User Clustering, and Activity Tracking Features: Personalization, Help, and Focus Direction

Course Policies & Expectations

Students with Disabilities: Our community values diversity and seeks to promote meaningful access to educational opportunities for all students. CMU and your instructors are committed to your success and to supporting Section 504 of the Rehabilitation Act of 1973 as amended and the Americans with Disabilities Act (1990). This means that in general no individual who is otherwise qualified shall be excluded from participation in, be denied benefits of, or be subjected to discrimination under any program or activity, solely by reason of having a disability. If you believe that you need accommodations for a disability, please contact us ASAP, and we will work together to ensure that you have the correct access to resources on campus to assist you through your coursework and time at CMU.

Academic Integrity: Carnegie Mellon University sets high standards for academic integrity. Those standards are supported and enforced by students, including those who serve as academic integrity hearing panel members and hearing officers. The presumptive sanction for a first offense is course failure, accompanied by the transcript notation "Violation of the Academic Integrity Policy." The standard sanction for a first offense by graduate students is suspension or expulsion. Please see <http://www.cmu.edu/academic-integrity/> for any questions.

Cell Phones, Smartphones and other handheld wireless devices: Other than during class breaks, please silence ring tones and refrain from engaging in calls, messaging or other use during class time. All devices must not be visible in any way during quizzes.

Policy Regarding Students Using English as a Foreign Language: Assignments in this course are graded with reference to evidence of the acquisition of concepts, presentation format, and accuracy of information. Having done business in countries that use languages other than English, we understand that the use of an unfamiliar language can result in unusual word choices or grammatical errors that are not critical to the overall understanding of the information. Therefore, we will take into account your need to function in a language that may be unfamiliar to you. We will provide feedback as appropriate if we feel that language or grammar you have used in assignments would be best if it were configured in a different way.

Use of Canvas System for this course: The Heinz School uses Carnegie Mellon University's Canvas system to facilitate distance learning as well as to enhance main campus courses. In this course, we will use the Canvas system generally to post lecture notes and related documents and to receive assignments electronically from students.

Take care of yourself. Do your best to maintain a healthy lifestyle this semester by eating well, exercising, avoiding drugs and alcohol, getting enough sleep and taking some time to relax. This will help you achieve your goals and cope with stress. All of us benefit from support during times of struggle. You are not alone. There are many helpful resources available on campus and an important part of the college experience is learning how to ask for help. Asking for support sooner rather than later is often helpful. If you or anyone you know experiences any academic stress, difficult life events, or feelings like anxiety or depression, we strongly encourage you to seek support. Counseling and Psychological Services (CaPS) is here to help: call [412-268-2922](tel:412-268-2922) and visit their website at <http://www.cmu.edu/counseling/>. Consider reaching out to a friend, faculty or family member you trust for help getting connected to the support that can help.

We welcome feedback during and after the course. Students are encouraged to share life-experiences in class. We are open to suggestions about class sequences, changes to the content and additional topics to cover.