

Instructor:
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Course Description

This course is geared to provide technical literacy for non-programmers who will be founders, employees, or consultants to "tech-enabled" organizations. This is a survey-style course that is very hands-on – students will learn the essentials of coding by creating websites and basic software applications that manipulate data and work across today's platforms and devices.

NOTE TO STUDENTS: This is a very hands-on class, so it is important to be on time and to have reviewed all assigned supplemental materials. If, for any reason, a class session is missed, you are responsible for catching up. Late work cannot be accepted.

Students will:

- Build their own website and deploy it on
- a variety of platforms, including tablets and mobile devices, using modern web development tools and techniques
- Achieve technical literacy with the JavaScript programming language and related open-source technologies, using it to build simple web and mobile applications
- Gain exposure to open-source business initiatives from Facebook, Google, and other major contributors to the languages and frameworks shaping modern software development
- Learn to manipulate and consume data with SQL, open datasets, and APIs

Students should expect to spend 6-8 hours a week on assignments. All students must have a modern Mac or Windows computer for completing homework and in-class projects. Detailed instructions on setup will be provided prior to the first day of class.

Assignments and Grading

Detailed instructions for creating a Github account to be used to turn in assignments will be provided at the first class session. Students are highly encouraged to work in study groups for all projects, but each student must turn in their own code that they developed themselves.

Code Projects (60%) Three projects worth 20% each, to be submitted online via GitHub

Final Project (30%) One final project, to be submitted online via GitHub

Class participation (10%) Students are expected to attend every class session.

Tentative Course Outline

Week 1

- Get your Development Environment set up
- Understand open-source software from a high-level and be able to use Git and the GitHub app to publish and share code with others
- Understand the building blocks of the web and use them to create your first web pages
- See how these building blocks are used to create everything on the web

Week 2

- Represent structured information using markup (HTML)
- Apply visual styling with CSS, Part 1
- Understand how photos, videos, and music are delivered via the web
- Key Concept #1: Modeling (Example: DOM)

Week 3

- Key Concept #2: Principle of Abstraction
- Key Concept #3: Frameworks (Example: Bootstrap)
- Understand screen resolutions across devices and platforms
- Design responsive websites

Week 4

- Introduction to the JavaScript programming language
- Use JavaScript to manipulate the DOM
- Key Concept #4: Event-Driven Programming
- Create interactive web applications with JavaScript
- Integrate with publicly available APIs and third-party scripts

Week 5

- Introduction to the jQuery framework
- Create interactive web applications with jQuery
- Understand the benefits/trade-offs of today's client-side web development frameworks such as Facebook's React
- Learn the basics of React and build modern web interfaces that interact with data

Week 6-7

- Key Concept #5: Separation of Concerns
- Introduction to the React framework
- Create event-driven web applications with React

Week 8-9

- Key Concept #6: Web vs. Native Applications
- Build cross-platform mobile applications with React Native
- Implement data storage across devices

Week 10

- Key Concept: Data Warehousing
- Introduction to SQL
- Learn how data is stored in the enterprise and gain a big-picture view of how customer-facing and corporate systems work together