

CSC 59940

Topics in Front End Web Application Development

Course Website

<https://michelleshu.github.io/web-development/>

Instructors

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About this course

This course will teach the basic design and implementation of a web application, with an emphasis on front-end development using Facebook's React framework. By the end of the course, you should have a basic toolkit to build fully functional web applications for hackathons, personal projects, or freelance work.

The course will provide an overview of component based web frameworks combining HTML, CSS, JavaScript, and Firebase backend-as-a-service. It will also cover industry best practices around agile development, version control, use of build tools, and designing for optimal user experience.

Textbook

None! We will provide online resources to use.

Course Objectives

1. Use modern web development practices to create dynamic pages using HTML, CSS and JavaScript (React framework)
2. Understand HTTP and facilitate communication between a client and server with AJAX.
3. Use Firebase to implement data persistence, authentication and file storage.
4. Know fundamental UI/UX design principles to evaluate user's needs and optimize usability.
5. Use agile web development practices for project planning and collaboration.
6. Write unit tests to validate the functionality of web application code.

Homework

You will be given homework assignments throughout the course. Homework is expected to take 2-4 hours each week to complete and will be submitted and reviewed through GitHub.

Project

The final 5 weeks of the course will be dedicated to a final project, in which you will build a live web application in groups of 3-5. The application should solve a realistic business need. That doesn't mean that it necessarily has to be business oriented, it could be a game. Your individual participation in this project will be measured by your GitHub contributions.

Grading

- 40% Homework
- 30% Midterm Exam
- 30% Group Project

Course Schedule

Week	Date	Topic
1	1/31	Version Control (Git), HTML
2	2/7	CSS
3	2/14	JavaScript Pt. 1: Data Types, Operators, Functions
4	2/21	JavaScript Pt. 2: Objects, Classes, ES6
5	2/28	ReactJS Pt. 1: NPM, JSX, React Components
6	3/7	ReactJS Pt. 2: Properties, State, Events
7	3/14	ReactJS Pt. 3: Router, Loading Data, Testing
8	3/21	Midterm Exam, AJAX, HTTP
9	3/28	Firebase, Application Deployment
10	4/4	Usability and Design
11	4/13	Project Week 1
12	4/18	Project Week 2
13	4/25	Project Week 3
14	5/2	Project Week 4
15	5/9	Course Wrap-up, Project Demos