

Advanced Front-End Web Development

ITP 404x (4 Units)

Objective

The objective of this course is to provide students with the necessary skills to build JavaScript web applications using modern techniques, frameworks, libraries, and tools that are used among developers within the industry. The concepts learned in this class will be applicable to many technology stacks students may work with in the future.

Prerequisites

ITP 301, ITP 303, ACAD 275, or experience with HTML, CSS, and JavaScript

You should be familiar with concepts such as variables, loops, conditional logic, functions, and the basics of objects.

Lecture

Each class will contain lectures, demos, and exercises.

Grading

Assignments: 25%

Labs: 10%

Class participation and attendance: 10%

Midterm: 20%

Individual final project: 35%

<i>A</i>	<i>100% - 93%</i>
<i>A-</i>	<i>92% - 90%</i>
<i>B+</i>	<i>89% - 87%</i>
<i>B</i>	<i>86% - 83%</i>
<i>B-</i>	<i>82% - 80%</i>
<i>C+</i>	<i>79% - 77%</i>
<i>C</i>	<i>76% - 73%</i>
<i>C-</i>	<i>72% - 70%</i>
<i>D+</i>	<i>69% - 67%</i>
<i>D</i>	<i>66% - 63%</i>
<i>F</i>	<i>62% and below</i>

Policies

Assignments and labs are due the following week at midnight unless stated otherwise. Extensions will be granted on a case by case basis. If an extension has been granted, the assignment or lab must be turned in within 5 days after the original due date, which is Sunday at midnight. Students must email the TA and the instructor with links to the assignment or lab. Failure to turn in assignments or labs by the due date will result in a 0.

Academic Integrity

The use of unauthorized material, communication with fellow students during an examination, attempting to benefit from the work of another student, and similar behavior that defeats the intent of an examination or other class work is unacceptable to the University. It is often difficult to distinguish between a culpable act and inadvertent behavior resulting from the nervous tension accompanying examinations. When the professor determines that a violation has occurred, appropriate action, as determined by the instructor, will be taken.

Although working together is encouraged, all work claimed as yours must in fact be your own effort. Students who plagiarize the work of other students will receive zero points and possibly be referred to Student Judicial Affairs and Community Standards (SJACS).

All students should read, understand, and abide by the University Student Conduct Code listed in SCampus, and available at:

<http://www.usc.edu/student-affairs/SJACS/nonacademicreview.html>

Students with Disabilities

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to your TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m. - 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

Course Outline

1 - 8/27 Course Introduction
Server-Rendered Web Apps vs. Single Page Apps (SPA)
Command Line Basics
Introduction to Git and GitHub
Synchronous vs Asynchronous Programming
HTTP Fundamentals, Ajax, JSON, and Promises
Assignment 1

2 - 9/3 Async/Await

Client-side Templating with Handlebars
Event Delegation

Assignment 2

Lab 1 - Research React (due at 6pm before next class)

3 - 9/10 Introduction to Components (React)

Assignment 3

4 - 9/17 Managing Data and Component State (React)

Assignment 4

5 - 9/24 Building Reusable Components Part 1 (React)

Assignment 5

Lab 2 - Research Testing (due at 6pm before next class)

6 - 10/1 Testing Components (React)

Lab 3 - Research SPAs and Ember.js (due at 6pm before next class)

7 - 10/8 Introduction to Single Page Applications (Ember)

Assignment 6

8 - 10/15 CRUD Single Page Applications (Ember)

Assignment 7

9 - 10/22 **Midterm**

Lab 4 - Project Proposal

10 - 10/29 Building Reusable Components Part 2 (Ember)

Lab 5 - Component Design

11 - 11/5 Testing Single Page Applications (Ember)

Continuous Integration

Lab 6 - Research API Conventions and Standards

(due at 6pm before next class)

12 - 11/12 Consuming APIs and Managing Data on the Front-End (Ember)

13 - 11/19 ITP 405 Teaser - Building APIs with Node.js

Lab 7 - Career Panel Questions (due at 6pm before next class)

14 - 11/26 No class (Thanksgiving)

15 - 12/3 Front-End Developer Interviews and Careers

Final Project (due 12/8 at midnight)

Students will develop and deploy a JavaScript web application using the technologies we learned in class on a topic of their choice. Detailed requirements will be sent out mid-semester.