

# 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%

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|-----------|----------------------|
| <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**

- |          |   |
|----------|---|
| 0        | Environment Setup   |
| 1 - 8/18 | Course Introduction<br>Synchronous vs Asynchronous Programming<br>HTTP Fundamentals, Ajax, JSON, and Promises<br><b>Assignment 1 - Rendering data from an Ajax call</b> |
| 2 - 8/25 | Promises (continued)<br>Client-side Templating  |

Event Delegation  
**Assignment 2**  
**Lab 1**

3 - 9/1 Introduction to React with Create React App  
Components, JSX, Props, State, Conditional Rendering  
**Assignment 3**

4 - 9/8 User Events, Forms, Data Flow, and State (React)  
**Assignment 4**

5 - 9/15 Client-side Routing and CRUD (Part 1)  
**Lab 2**  
**Lab 3**

6 - 9/22 Client-side Routing and CRUD (Part 2)  
REST APIs and JSON Server (Part 1)  
**Assignment 5**  
**Lab 4**

7 - 9/29 **Midterm**

8 - 10/6 REST APIs and JSON Server (Part 2)  
React Portals  
**Assignment 6**

9 - 10/13 Patterns for Building Reusable Components  
**Lab 5**

10 - 10/20 Testing Components (React) and Continuous Integration  
Mocking APIs with Mirage.js  
ESLint  
**Assignment 7**

11 - 10/27 State Management

12 - 11/3 Introduction to Node.js  
Building a REST API in Node.js (Part 1)

13 - 11/10 Building a REST API in Node.js (Part 2)

**Final Project (due 11/15 at 11:59pm)**

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.