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: 30%
Quizzes: 20%
Midterm: 20%
Individual final project: 30%

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

Due Dates and Extensions

Assignments 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 must be turned in within 5 days after the original due date, which is Sunday at midnight. If an extension has been granted, it is the responsibility of the student to email the Grader and the Instructor notifying them that the assignment is ready to be graded. Please include the link to your assignment's repository in your email. Failure to turn in an assignment by the due date will result in a 0.

**Attendance**

Students can attend class in-person, remotely, or asynchronously. The TA will record student attendance in Blackboard. If you attend asynchronously, in order to get credit for attendance, students must send an email to the TA and the instructor addressing the following prompt by Thursday at 11:59pm:

"Briefly describe one thing in this week's class that you found interesting or challenging."

**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](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 - 8/23  Course introduction
          Synchronous vs Asynchronous programming
          HTTP fundamentals, AJAX, JSON, and Promises
          Assignment 1

2 - 8/30  fetch
          Client-side templating
          Event delegation
          Assignment 2

3 - 9/6   JavaScript frameworks introduction with React
          JavaScript classes
          React class components
          Assignment 3

4 - 9/13  React: Working with arrays
          Primitive vs. Reference values
          Forms and data flow
          Assignment 4

5 - 9/20  Quiz 1
          React: Client-side routing
          REST API conventions
          Assignment 5

6 - 9/27  React: Building a CRUD application
          Assignment 6

7 - 10/4  Authentication for SPAs (Part 1)
          State management with the Context API

8 - 10/11 Midterm
          Assignment 7 - Final project overview

9 - 10/18 Manipulating data
          Node.js: Building an in-memory REST API
          Deploying to a PaaS (Heroku)

10 - 10/25 Authentication for SPAs (Part 2)

11 - 11/1 SQL basics
       Node.js: Building a database-driven REST API in Node.js
12 - 11/8  React: Building modals with Portals  
React: Patterns for building reusable components  
**Assignment 8**

13 - 11/15  async / await  
React: Testing components  
**Assignment 9**

14 - 11/22  **Quiz 2**  
TBA

15 - 11/29  WebSockets

**Final Project (due 12/4 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.