

# Modern Technologies of Web Development

## ITP 404x (3 Units)

### Objective

Provide students with the necessary skills to build web applications using modern techniques, frameworks, libraries, web services and API's, design patterns, and tools that are used among developers within the industry.

### Concepts

This course is intended to teach a combination of new technologies, conventions, and prevalent standards and best practices used in contemporary web development.

### Prerequisites

ITP 301 or CSCI 351 (or sufficient experience)

### Lecture

3 hrs / week

### Course Structure

Students are expected to:

- Participate in lecture discussions and critiques
- Complete weekly lab assignments and projects
- Manage and complete individual class projects

Students are responsible for completing assignments and projects by stated deadlines. Most assignments will be uploaded by students to their USC Web space in an itp404 directory.

### Recommended Textbooks

JavaScript Enlightenment by Cody Lindley: O'reilly Publishing, 2013

- Free ebook: <http://www.javascriptenlightenment.com/>
- Hard copy:  
<http://www.amazon.com/JavaScript-Enlightenment-Cody-Lindley/dp/1449342884>

Class Demos will be posted at <https://github.com/ITP-Webdev>

### Grading

Grading will be based on lecture participation, completed assignments and projects, midterm grades, and a final individual project.

**Final grades will be determined as follows:**

Assignments: 30%  
Class Participation: 10%  
Midterm Project: 15%  
Quizzes: 10%  
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**

It is the responsibility of the student to make sure projects and assignments are turned in on time. Make sure you follow the procedures outlined in each assignment or project.

Each student will receive 3 assignment extensions to be used at discretion. 5 days after the due date marks the end of the extension.

### **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

*It is recommended that students read JSE by week 5.*

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| Week 1 | Course introduction / Getting into the industry<br>JavaScript / jQuery review<br><b>Assignment (optional)</b>  |
| Week 2 | Object Oriented JavaScript Pt. 1 <ul style="list-style-type: none"><li>• Intro to objects and 'this'</li><li>• Application namespacing</li><li>• Objects, 'this', and jQuery</li></ul> <b>Assignment</b> |
| Week 3 | Object Oriented JavaScript Pt. 2 <ul style="list-style-type: none"><li>• Constructors and Prototypes</li><li>• Private methods</li><li>• Extending native constructors</li></ul> <b>Assignment</b>       |
| Week 4 | Object Oriented JavaScript Pt. 3 <ul style="list-style-type: none"><li>• call() and apply()</li><li>• Inheritance</li><li>• Mixins</li><li>• Building jQuery from scratch</li></ul> <b>Assignment</b>    |
| Week 5 | <b>Quiz 1</b><br>Google Maps JavaScript API<br>Geolocation API<br><b>Assignment: Current position mapper</b>   |
| Week 6 | Overview of communicating with a server<br>JSON & JSONP<br>Asynchronous programming<br>Client-side templating<br>Event delegation<br><b>Assignment</b>   |

Week 7	Server-side proxies Intro to PHP and web services <b>Midterm Project Project Proposal</b>
Week 8	AJAX and Promises <b>Assignment</b>
Week 9	Testing overview Intro to unit testing & TDD <b>Assignment</b>
Week 10	Unit testing continued Writing testable code Single Responsibility Principle <b>Assignment</b>
Week 11	Backbone.js - Models, Views, & Collections <b>Assignment</b>
Week 12	The Observer pattern Backbone.js - Events, Routing, & application organization <b>Assignment</b>
Week 13	<b>Quiz 2</b> Angular.js <b>Assignment - Tic-tac-toe</b>
Week 14	Angular.js <b>Assignment (EC)</b>
Week 15	Presentations <b>Final Project Due</b>

## Final Project

Students will develop a web application on a topic of their choice. The web application must utilize several technologies and web services discussed throughout the semester. Detailed requirements will be sent out mid-semester.

### Project feature ideas

- Data storage with a Backend-as-a-Service
- Real-time functionality with Web Socket libraries
- Map / API integration