



Developing Web Services and Application Programming Interfaces

ITP 404x (3 Units)

Objective

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

Concepts

This course is intended to teach a combination of technologies, conventions, and best practices used in contemporary Web Development. This class will also expose students to some of the most prevalent standards and techniques in 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 and posted in an itp404 directory. Others may require a more extensive hosting solution and can be uploaded to a free cloud hosting service such as PHPFog or Pagoda Box.

Required Textbooks

All reading will be distributed through handouts and URLs.

JavaScript Enlightenment: (javascriptenlightenment.com) - Free PDF book

Website

<https://github.com/skaterdav85/ITP-404>

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%

Final course grade is determined by standard formulas:

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

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.

Late projects will be reduced a letter grade per day after the assignment was due. No projects will be accepted later than five days from the due date.

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

Week 1 Class Intro & Overview: Web Services, Frameworks, & Libraries

Week 2 jQuery Overview / Review

Week 3 jQuery (continued), good practices
Version Control with Git & GitHub
jQuery plugins

Week 4 Object Oriented JavaScript

- Namespacing
- Constructor functions & prototypal inheritance
- Insights into jQuery

Week 5 Google Maps JavaScript API
Geolocation

Week 6 PHP 1: Introduction

- Client-server architecture
- Local development environments
- Language overview

Quiz 1

Week 7 PHP 2: RESTful Web Services

- HTTP Overview & REST Design Principles
- HTTP Verbs: Get, Post, Put, Delete
- XML & JSON
- Client URL Request Library (CURL)

Week 8 AJAX

- Vanilla AJAX
- AJAX with jQuery

Week 9 More on AJAX with jQuery, JSON, and XML
Cross Domain Communication
Facebook Graph API & FQL
Client-side templating

- Week 10 PHP 3: Object Oriented Programming
- Classes, Inheritance, Encapsulation, Polymorphism
 - Magic Methods
- Midterm Project (Due Week 11)**
- Week 11 PHP MVC Frameworks - Part 1
- Installation & Configuration
 - Models, Views, & Controllers
- Week 12 PHP MVC Frameworks - Part 2
- Database Interaction w/ Active Record
 - Object Relational Mapping (ORM)
- Week 13 Loose Coupling w/ PubSub & the Mediator Pattern
Amplify.js library
Quiz 2
- Week 14 Real-time Applications w/ Web Sockets
- Week 15 TBD

Student Presentations on the day of the final (Tuesday, December 18th, 7-9pm)