



# Professional Applications and Frameworks in Web Development

ITP 405x (3 Units)

## Objective

Provide students with the necessary skills to build server-side applications and APIs using frameworks and tools common in the industry.

## Concepts

The course will cover the differences between traditional server-side technologies like PHP and how it differs from Node.js, an asynchronous server-side alternative using JavaScript.

## Prerequisites

ITP 300 or CSCI 351 (or sufficient experience). You should be proficient with building dynamic web pages using HTML, CSS, SQL, and PHP.

## Lecture

3 hours / week

## Course Structure

Students are expected to participate in lecture discussions and critiques, complete weekly assignments and projects, and manage and complete individual class projects.

Students are responsible for completing assignments and projects by stated deadlines. Students will upload most assignments to Github.

## Recommended Reading

*PHP Object Oriented Solutions* by David Powers: Apress, 2013 – There is a free version provided by USC. Visit [this link](#). Click the link next to Electronic Access that says "» SpringerLink - An electronic book accessible through the World Wide Web; click for information". Log in with your USC credentials, and then you can download the book in PDF format.

*JavaScript Enlightenment* (Free PDF book) - <http://www.javascriptenlightenment.com>

Articles – Each week there will be mandatory online articles to read.

## Grading

Assignments: 35%

Class participation, attendance, and labs: 10%

Exam: 20%

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

1/10	Class Introduction Traditional vs. API driven web applications Installing PHP >= 5.4, Composer, Sequel Pro/MySQL Workbench Intro to Git and Github Reading: PHP Object Oriented Solutions – Chapter 1 & 2
1/17 (PHP/SQL)	HTTP lifecycle Database-driven web pages review SQL joins PHP Data Objects (PDO) <b>Assignment</b>
1/24 (PHP)	Object Oriented Programming in PHP Classes, Inheritance, Statics, Namespaces <b>Assignment</b>
1/31 (PHP)	Model-View-Controller (MVC) Laravel – Routes, Controllers, Query builder, and Views <b>Assignment</b>
2/7 (PHP)	Laravel – CRUD, flash messages, data validation <b>Assignment</b>
2/14 (PHP)	Laravel - Object Relational Mapping (ORM) <b>Assignment</b> Reading: JavaScript basics
2/21 (PHP)	Laravel - Authentication <b>Assignment</b>
2/28 (PHP)	Asynchronous programming with Node.js CommonJS modules and NPM Managing flow control with callbacks Server-side templating with Handlebars <b>Assignment (due 3/21)</b>
3/7	Exam
3/14	Spring Break
3/21 (Node)	Managing flow control with promises <b>Assignment</b>

- 3/28 (Node) Introduction to APIs and JSON  
Building an API with Express and Waterline  
**Assignment**
- 4/4 (Node) Authentication with an API
- 4/11 (Node) Consuming an API with Authentication
- 4/18 (Node) Managing flow control with generator functions  
Koa
- 4/25 (Node) Deployment

**Final Project due 4/26**