

**USC Jimmy Iovine
and Andre Young
Academy**

Acad 276: Dev 2

4 Units:

Fall 2017—Tuesday and Thursday 2 - 4:50p.m.

Location: VPD LL101

Website: <http://webdev.usc.edu/Acad276>

Instructor: Patrick Dent

Office: STO331

Office Hours: TBA

Contact Info: dent@usc.edu / 213-821-1400

Note: Email is the preferred method of contact. I will typically with 24 hours (Mon - Fr).

Grader: Zhongyang Gao

Office Hours: TBA

Contact Info: zhongyag@usc.edu

IT Help: Academy IT

Hours of Service: 8:30-5:00pm

Contact Info: iyhelp@usc.edu, 213-821-6917

Course Description

This course teaches the fundamentals of relational database management systems (RDBMS) and how to design and implement databases. Students will learn the Structured Query Language (SQL) for communicating with databases. They will learn and use the PHP scripting language to make SQL calls to databases and to flow those results into pages. Students will also use PHP to create data interfaces, as well as to create basic conditional routines and other constructs that allow for dynamic sites. They will perform basic analytics and will learn the fundamentals of alternative data structures, enterprise databases, and "big data" systems.

Learning Objectives

From e-commerce to news and information, modern web sites do not contain thousands of hand-coded pages. Sites are driven by web "templates" that flow in information from databases or other data sources. Student will learn the basics of creating data structures to house the core "data" of web sites and user server-side scripting to "flow" that information into web templates. They will also learn the basic techniques for tracking user behavior and traffic, and the fundamentals of performing analytics on that data.

Prerequisite: Acad275

Required Textbook: Non

Grading Breakdown

Assignment	35%
Attendance and Labs	15%
Examination	15%
Major Project	35%
TOTAL	100%

Grading Scale (Example)

Course final grades will be determined using the following scale

A	93-100
A-	90-92
B+	88-89
B	83-87
B-	80-82
C+	78-79
C	73-77
C-	70-72
D+	68-69
D	63-67
D-	60-62
F	59 and below

Major Project [DRAFT]

Students will work in groups to build a database-driven web site built in MySQL and PHP. The site will feature a secured administrative back-end, track user behavior and traffic, and feature custom modules.

Project Timeline:

Week 10	Milestone 1	<i>Proposal, DB v1, Logos, Frontpage designs</i>
Week 12	Milestone 2	<i>Frontpage build, Search and Result pages, Design / Style Guide</i>
Week 14	Milestone 3	<i>Login, Admin, Majority of Site Pages</i>
Week 16	Final Build	<i>Complete, Dynamic Site, Summary and Write Up</i>

Course Structure

Students are expected to:

- Participate in lecture discussions and critiques
- Complete weekly labs, assignments and projects
- Manage, participate in and complete group project builds

Students are responsible for completing assignments and projects by stated deadlines. Most assignments will be uploaded by students to their USC Web space and linked from an assignment page.

Policies

No make-up exams (except for documented medical or family emergencies) will be offered nor will there be any changes made to the Final Exam schedule, except as permitted by university rules.

Due dates and requirements for all Labs and Assignments will be posted on the course site. Students will “post” their work to their USC web space as defined on the course site.

It is the student’s responsibility to post work by the due date following the defined class procedures, even if you miss class. Work turned in late will lose 10% credit per day and late work is not accepted after two weeks past the due date. To receive credit for late work you MUST email the grader that you posted a lab or assignment after the due date or you will not receive credit.

An attendance sheet will be circulated each lecture. You must sign in for lecture to receive lecture attendance credit.

Dev 2: Server-side web development, databases and analytics

Course Outline

Week 1a	Aug 22	Course introduction and overview. Web server and content workflow. Lab: Install mySql Workbench (due W1b)
Week 1b	Aug 24	Database fundamentals, designing databases for web content, major db platforms. MySQL, working with MySQL Workbench. Assignment: DB schema (due W2a)
Week 2a	Aug 29	Introduction to Structured Query Language (SQL). Reading data with SELECT and WHERE. Views Assignment: SQL statements pt 1 (due W2b)
Week 2b	Aug 31	SQL Review. Inserting, updating and deleting records, Reformatting data. Introduction to phpmyadmin. Assignment: RVS db schema. SQL statements pt 2 (due W3a).
Week 3a	Sept 05	Introduction to PHP and PHPStorm. Introduction to PHP Scripting Language and basic tags Lab: Assignment Web page (due W3b) Assignment: Class schedule database (due W3b)
Week 3b	Sept 07	PHP and MySQL (mysqli). Populating pages with content from db. Looping through queries. Assignment: Search and Result pages (due 4a)
Week 4a	Sept 12	Php conditional statements. Populating select menus. Assignment: Search, Result pages v2 (due 4b)
Week 4b	Sept 14	Data Visualization (GL)
Week 5a	Sept 19	Review php "if", dynamic menus. Creating web "insert" forms. Assignment: Add, Insert pages (due 5b)

Week 5b	Sept 21	Drill-down workflow 1: Search, Results, Details Lab: Search, result, details pages (due 6a) Assignment: Project proposal and db sketch (due 6b)
Week 6a	Sept 26	Drill-down workflow 2: Results, Edit, Delete Assignment: Db backup/export. Edit/update pages. (due 6b)
Week 6b	Sept 28	Database exercise. Review drill-down, form objects. Exam preparation. Assignment: Proposal Video Pitches (due 7b)
Week 7a	Oct 03	<i>PHP and SQL Examination</i>
Week 7b	Oct 05	Images in databases. File uploads with php. Assignment: Add images to class schedule
Week 8a	Oct 10	Group project discussions. Aggregate SQL.
Week 8b	Oct 12	Review php includes. Session and client variables. Login routines. Lab: Php log-in, security sandbox
Week 9a	Oct 17	SQL scalar functions. Setting foreign key constraints. Creating emails with php. Lab: Create "Email search results" functionality.
Week 9b	Oct 19	Sub-queries. Paginated results.
Week 10a	Oct 24	PHP Frameworks 1
Week 10b	Oct 26	PHP Frameworks 2
Week 11a	Oct 31	Introduction to Analytics
Week 11b	Nov 02	<i>Special Topics (TBA)</i>
Week 12a	Nov 07	Group project design critiques
Week 12b	Nov 09	Deconstructing project databases. Enforcing key constraints, many-to-many joins.
Week 13a	Nov 14	<i>Special Topics (TBA)</i>
Week 13b	Nov 16	<i>Special Topics (TBA)</i>

Week 14a	Nov 21	Group project “comm” critiques
	<i>Nov 23</i>	<i>University Holiday</i>
Week 15a	Nov 28	DB transactions, locking
Week 15b	Nov 30	Beyond Dev2: server-side technologies, hosting, CMS <i>Special Topics (TBA)</i> Next-generation development
	Dec 01	Group Website Final Build due

Possible Special Topics:

Caching

Additional intermediate PHP Functions

Laravel PHP Framework

Advanced Joins

Query Performance Optimization

Business Intelligence Systems Part 1: Big data, data warehousing,

*Business Intelligence Systems Part 2: business reporting,
data mining*

Analytics Special Topics

Quality Assurance processes and phases

The Web development industry

Industry Event or Tour

Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct>.

Support Systems:

Student Counseling Services (SCS) – (213) 740-7711 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. engemannshc.usc.edu/counseling

National Suicide Prevention Lifeline – 1 (800) 273-8255

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

www.suicidepreventionlifeline.org

Relationship and Sexual Violence Prevention Services (RSVP) – (213) 740-4900 – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

engemannshc.usc.edu/rsvp

Sexual Assault Resource Center

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: sarc.usc.edu

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086

Works with faculty, staff, visitors, applicants, and students around issues of protected class. equity.usc.edu

Bias Assessment Response and Support

Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response.

studentaffairs.usc.edu/bias-assessment-response-support

The Office of Disability Services and Programs

Provides certification for students with disabilities and helps arrange relevant accommodations. dsp.usc.edu

Student Support and Advocacy – (213) 821-4710

Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. studentaffairs.usc.edu/ssa

Diversity at USC

Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. diversity.usc.edu

USC Emergency Information

Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible. emergency.usc.edu

USC Department of Public Safety – UPC: (213) 740-4321 – HSC: (323) 442-1000 – 24-hour emergency or to report a crime.

Provides overall safety to USC community. dps.usc.edu