

USC Iovine and Young Academy

*Arts, Technology and the Business
of Innovation*

Acad276: Dev 2

4 Units

Tuesdays, Thursdays 5 – 7:50pm in IYH210

Fall 2021

Website: <http://iyawebdev.com/acad276>

Instructor: Patrick Dent

Office: IYH201M

Office Hours TBA

And by appointment

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

Note: Email is the preferred method of contact.

I will typically respond with 24 hours (M - F).

Grader: Sachin Gupta <sgupta27@usc.edu>

IT Help: <https://uscedu.sharepoint.com/sites/IYAStudent/SitePages/IT-Resources.aspx>

Hours of Service: 8:30am - 6:30pm

Contact Info: iya.helpdesk@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: None

Grading Breakdown

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

Grading Scale

The following shows the grading scale to be used to determine the letter grade.

A	100-94
A-	94-90
B+	90-87
B	86-83
B-	83-80
C+	80-77
C	77-73
C-	73-70
D+	70-67
D	67-64
F	64 or 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:

<i>Week 09</i>	<i>Milestone 1</i>	<i>User Research, Proposal, DB v1, Logos, Frontpage designs</i>
<i>Week 12</i>	<i>Milestone 2</i>	<i>Frontpage build, Search and Result pages, Design / Style Guide</i>
<i>Week 13</i>	<i>Milestone 3</i>	<i>User Testing Results</i>
<i>Week 14</i>	<i>Milestone 4</i>	<i>Login, Admin, Majority of Site Pages</i>
<i>Week 16</i>	<i>Final Build</i>	<i>Complete, Dynamic Site, Summary and Write Up</i>

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 linked from an assignment page.

Policies

No make-up exams (except for documented medical or family emergencies).

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.

Academy Attendance Policy

The Academy maintains rigorous academic standards for its students and on-time attendance at all class meetings is expected. Each student will be allowed two excused absences over the course of the semester for which no explanation is required. Students are admonished to not waste excused absences on non-critical issues, and to use them carefully for illness or other issues that may arise unexpectedly. Except in the case of prolonged illness or other serious issue (see below), no additional absences will be excused. Each unexcused absence will result in the lowering of the final grade by $\frac{1}{3}$ of a grade (e.g., an A will be lowered to A-, and A- will be lowered to a B+, etc.). In addition, being tardy to class will count as one-third of an absence. Three tardies will equal a full course absence.

Students remain responsible for any missed work from excused or unexcused absences. Immediately following an absence, students should contact the instructor to obtain missed assignments or lecture notes and to confirm new deadlines or due dates. Extensions or other accommodations are at the discretion of the instructor.

Automatically excused absences normally may not be used for quiz, exam or presentation days. Using an excused absence for a quiz, exam or presentation, such as in the case of sudden illness or other emergency, is at the discretion of the instructor.

In the case of prolonged illness, family emergencies, or other unforeseen serious issues, the student should contact the instructor to arrange for accommodation. Accommodation may also be made for essential professional or career-related events or opportunities. All accommodations remain at the discretion of the instructor, and appropriate documentation may be required.

Fall 2021 addendum:

- Unless students provide an accommodation letter from USC's Office of Student Accessibility Services or a letter from IYA Student Services detailing visa or travel restrictions, attendance and active participation is expected in the classroom. Any student with such accommodations should submit their accommodation document to the instructor as soon as possible to discuss appropriate accommodations. Either classroom recordings or live remote access to the class via Zoom will be provided.
- Students who are experiencing illness should not attend class in person. Please inform the instructor in advance of any class sessions that you can't attend for medical reasons, and accommodations will be arranged to view recorded lectures and submit alternatives to any missed class participation. Students will not be penalized for not attending class in person under these circumstances.
- In the event that you find yourself experiencing COVID-19 related symptoms, in keeping with university recommendations, you should Stay home! This is the best way to prevent spreading COVID-19 as supported by scientific evidence; Please do not come to an in-person class if you are feeling ill, particularly if you are experiencing symptoms of COVID-19

HOW TO PURCHASE SOFTWARE AT THE DISCOUNTED ACADEMY RATE THROUGH THE USC BOOKSTORE:

The following first year software are now available for purchase **online** through the USC Bookstore at the Academy discounted rate:

<u>Software</u>	<u>IYA Short-Term License at USC Bookstore</u>
Adobe Creative Cloud	\$70 2021-2022 annual license

1. Visit the USC Bookstore online:
<https://www.uscbookstore.com/usciasoftware>
2. Select the software license(s) you would like to purchase.
3. When you proceed to checkout, add the Promo Code “IYASoftware” (This will override the listed taxes).
4. For shipping, select FedEx Home Delivery (free).
5. Once you complete your online purchase, you will receive a confirmation email/receipt. *(Note that even if a shipping charge appears on your invoice, it will not be charged to your credit card. This relates to a known technical problem with the Bookstore’s online store.)*
6. Upload your receipt [here](#) to receive access to your purchased license.
7. You will be notified by email when the license has been activated

If you have any questions about this process, please do not hesitate to contact Academy IT Support at iya.helpdesk@usc.edu.

Course Schedule: A Weekly Breakdown – EDITED to version 1.5

Week 1a	Aug 24	Course introduction and overview. Web server and content workflow. Lab: Install mySql Workbench (due W1b)
Week 1b	Aug 26	Database fundamentals, designing databases for web content, major db platforms. MySQL, working with MySQL Workbench. Assignment: DB schema (due W2a)
Week 2a	Aug 31	Introduction to Structured Query Language (SQL). Reading data with SELECT and WHERE. Views Assignment: SQL statements pt 1 (due W2b)
Week 2b	Sept 02	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 07	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 09	PHP, MySQL (mysqli). Populating pages with db content. Looping through queries. Assignment: Search and Result pages (due 4a)
Week 4a	Sept 14	Php conditional statements. Populating select menus. Assignment: Search, Result pages v2 (due 4b)
Week 4b	Sept 16	Review php “if”, dynamic menus. Creating “insert” forms. Lab: Db backup/export. Assignment: Add, Insert pages (due 5a)
Week 5a	Sept 21	Drill-down workflow 1: Search, Results, Details Lab: Search, result, details pages (due 5b) Assignment: Project proposal, db sketch and pitch videos (due 6a)
Week 5b	Sept 23	Drill-down workflow 2: Results, Edit, Delete Assignment: Edit/update pages. (due 6a)
Week 6a	Sept 28	Review drill-down, form objects. Exam preparation.

Week 6b	Sept 30	Group project pitches and discussions.
Week 7a	Oct 05	<i>PHP and SQL Examination</i>
Week 7b	Oct 07	Deconstructing project databases. Project: M1: User Research, Proposal, Db, Logos (due 9b)
Week 8a	Oct 12	Setting, enforcing foreign key constraints. Deconstructing project databases. Assignment: Group production schedule/gantt (due 9a)
<i>Week 8b</i>	<i>Oct 14</i>	<i>Fall Recess</i>
Week 9a	Oct 19	Class cancelled
Week 9b	Oct 21	Overview of Tech Courses beyond Acad276 Project: M2: Fronts, search/results, styleguide (due 12a) Assignment: Group design comps, critique prep (due 10a)
Week 10a	Oct 26	M1 Design Feedback session
Week 10b	Oct 28	Source control, github and phpstorm integration. Creating emails with php. Lab: Create “Email search results” functionality (due 11a)
Week 11a	Nov 02	Images in databases. File uploads with php. Assignment: Add images to class schedule (due 12a)
Week 11b	Nov 04	Aggregate SQL Paginated results. Group Working Session
Week 12a	Nov 09	User Testing, HCD. Php includes, sessions, client variables. Login routines. Lab: Php log-in, security sandbox (due W13a). Project: M3: User Testing (due W13a) Project: M4: Login, admin, most of site (due W14a)
Week 12b	Nov 11	Calling APIS Comm, Design Critiques
Week 13a	Nov 16	Revisiting Javascript in data. JSON and UX. Transferring data from php queries into JS constructs.

Week 13b	Nov 18	Intermediate data topics, analytics, machine learning.
Week 14a	Nov 23	Php frameworks. Introduction to Security issues. Project: M5: Final build (due 12/3)
<i>Week 14b</i>	<i>Nov 25</i>	<i>Thanksgiving Break</i>
Week 15a	Nov 30	Unintended Consequences workshop. Insights into cloud and Devops. Enterprise db concepts such as transactions and locking. Sub-queries.
Week 15b	Dec 02	Beyond Dev2: server-side technologies, hosting, CMS Next-generation development <i>Special Topics</i>
	Dec 03	Group Website Final Build due 11:59pm
	<i>Dec 09</i>	<i>Final Presentations of Group Projects</i>

Possible Special Topics:

Data Visualization (GL)

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, policy.usc.edu/scientific-misconduct.

Support Systems:

Student Health Counseling Services - (213) 740-7711 – 24/7 on call
engemannshc.usc.edu/counseling

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

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org

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

Relationship and Sexual Violence Prevention Services (RSVP)
-213-740-9355 (WELL)

<https://studenthealth.usc.edu/sexual-assault/>

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

Relationship and Sexual Violence Prevention and Services provides immediate therapy services for situations related to gender- and power-based harm (e.g., sexual assault, domestic violence, stalking). (wording from the site)

Office of Equity and Diversity (OED) | Title IX - (213) 740-5086
equity.usc.edu, titleix.usc.edu

Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations.

USC Policy Reporting to Title IX (213) 740-5086

<https://policy.usc.edu/reporting-to-title-ix-student-misconduct/>

The university encourages individuals to report prohibited conduct to the *Title IX Office*. Individuals can report to the university *Title IX Coordinator* in the *Office of Equity and Diversity*.

Bias Assessment Response and Support - (213) 740-2421

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

Avenue to report incidents of bias, hate crimes, and microaggressions for appropriate investigation and response.

The Office of Disability Services and Programs - (213) 740-0776

dsp.usc.edu

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Support and Advocacy - (213) 821-4710

studentaffairs.usc.edu/ssa

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101

diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

dps.usc.edu

Non-emergency assistance or information.