

# 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 2022

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

**Instructor:** Patrick Dent

**Office:** IYH201M

**Office Hours** TBA

And by appointment

**Contact Info:** [dent@usc.edu](mailto:dent@usc.edu) / 213-821-1400

*Note: Email is the preferred method of contact.*

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

**Grader:** TBA

**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](mailto:iya.helpdesk@usc.edu), 213-821-6917

### USC Technology Support Links

[Zoom information for students](#)

[Blackboard help for students](#)

[Software available to USC Campus](#)

### 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

### **USC Technology Rental Program**

The university realizes that attending classes online and completing coursework remotely requires access to technology that not all students possess. If you need resources to successfully participate in your classes, such as a laptop or internet hotspot, you may be eligible for the university's equipment rental program. To apply, please submit an [USC Technology Rental Program Application](#).

### **HOW TO PURCHASE SOFTWARE AT THE DISCOUNTED ACADEMY RATE**

For classes that require them, the following software are available for purchase **online** through the USC Iovine and Young software catalog at the Academy discounted rate:

<b>Software</b>	<b>IYA Short-Term License at USC Bookstore</b>
<b>Adobe Creative Cloud</b>	\$70 2019–2020 annual license

To purchase:

- Visit: <https://commerce.cashnet.com/IOVINE>
- Select the software license(s) you would like to purchase by clicking “View Details” or the software title, and make your purchase
- You will receive an order confirmation receipt at the email address you provided
- You will be notified by email when the software license has been activated

If you have any questions about this process, please do not hesitate to contact Academy IT Support at [iyahelp@usc.edu](mailto:iyahelp@usc.edu).

### **Grading Breakdown**

<b>Assignment</b>	<b>35%</b>
<b>Attendance and Labs</b>	<b>15%</b>
<b>Examination</b>	<b>15%</b>
<b>Major Project</b>	<b>35%</b>
<b>TOTAL</b>	<b>100%</b>

## 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>	Milestone 1	<i>User Research, Proposal, DB v1, Logos, Frontpage designs</i>
<i>Week 12</i>	Milestone 2	<i>Frontpage build, Search and Result pages, Design / Style Guide</i>
<i>Week 13</i>	Milestone 3	<i>User Testing Results</i>
<i>Week 14</i>	Milestone 4	<i>Login, Admin, Majority of Site Pages</i>
<i>Week 16</i>	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 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 2022 addendum:*

- Unless students provide an accommodation letter from USC's Office of Student Accessibility Services (OSAS) 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.

## Course Schedule: A Weekly Breakdown

Week 1a	Aug 23	Course introduction and overview. Web server and content workflow. <b>Lab:</b> Test cPanel, create database (due 1b)
Week 1b	Aug 25	Database fundamentals, designing databases for web content, major db platforms. MySQL, working with phpmyadmin <b>Assignment:</b> DB schema (due W2a)
Week 2a	Aug 30	Introduction to Structured Query Language (SQL). Reading data with SELECT and WHERE. Views <b>Assignment:</b> SQL statements pt 1 (due W2b) <b>Lab:</b> Install mySql Workbench (due W2b)
Week 2b	Sept 01	SQL Review. Working with MySQL Workbench. Inserting, updating and deleting records, Reformatting data. <b>Assignment:</b> RVS db schema. SQL statements pt 2 (due W3a). Working with MySQL Workbench.
Week 3a	Sept 06	Introduction to PHP and PHPStorm. Introduction to PHP Scripting Language and basic tags <b>Lab:</b> Assignment Web page (due W3b) <b>Assignment:</b> Class schedule database (due W3b)
Week 3b	Sept 08	PHP, MySQL (mysqli). Populating pages with db content. Looping through queries. <b>Assignment:</b> Search and Result pages (due 4a)
Week 4a	Sept 13	Php conditional statements. Populating select menus. <b>Assignment:</b> Search, Result pages v2 (due 4b)
Week 4b	Sept 15	Review php “if”, dynamic menus. Creating “insert” forms. <b>Lab:</b> Db backup/export. <b>Assignment:</b> Add, Insert pages (due 5a)
Week 5a	Sept 20	Drill-down workflow 1: Search, Results, Details <b>Lab:</b> Search, result, details pages (due 5b) <b>Assignment:</b> Project proposal, db sketch and pitch videos (due 6a)
Week 5b	Sept 22	Drill-down workflow 2: Results, Edit, Delete <b>Assignment:</b> Edit/update pages. (due 6a)

Week 6a	Sept 27	Review drill-down, form objects. Exam preparation.
Week 6b	Sept 29	Group project pitches and discussions.
Week 7a	Oct 04	<b><i>PHP and SQL Examination</i></b>
Week 7b	Oct 06	Deconstructing project databases. <b>Project:</b> M1: User Research, Proposal, Db, Logos (due 9b)  <i>Special Topic</i> (Agile development, Logo workshop?)
Week 8a	Oct 11	Extended open lab <b>Assignment:</b> Group production schedule/gantt (due 9a)
<i>Week 8b</i>	<i>Oct 13</i>	<i>Fall Recess</i>
Week 9a	Oct 18	Deconstructing project databases. Overview of Tech Courses beyond Acad276 Group project strategies <b>Assignment:</b> Group design comps, critique prep (due 9b) <b>Project:</b> M2: Fronts, search/results, styleguide (due 12a)
Week 9b	Oct 20	Deconstructing project databases. Setting, enforcing foreign key constraints. Source control, github and phpstorm integration.
Week 10a	Oct 25	M1 Design Feedback session Group Working Session
Week 10b	Oct 27	Images in databases. File uploads with php. <b>Assignment:</b> Add images to class schedule (due 11b)
Week 11a	Nov 01	Review php includes. Session and client variables. Login routines. <b>[Removed] Lab:</b> Php log-in, security sandbox (NOT due).
Week 11b	Nov 03	Aggregate SQL. Intermediate data topics, analytics, machine learning.
Week 12a	Nov 08	Creating emails with php. User Testing, HCD <b>Project:</b> M3: User Testing (due W13a) <b>Project:</b> M4: Login, admin, most of site (due W14a) <b>Lab:</b> Create “Email search results” functionality (due 11b)

Week 12b	Nov 10	Calling APIS Comm, Design Critiques
Week 13a	Nov 15	Paginated results
Week 13b	Nov 17	Revisiting Javascript in data. JSON and UX. Transferring data from php queries into JS constructs.
Week 14a	Nov 22	Php frameworks. Introduction to Security issues. <b>Project:</b> M5: Final build (due 12/2)
<i>Week 14b</i>	<i>Nov 24</i>	<i>Thanksgiving Break</i>
Week 15a	Nov 29	Unintended Consequences workshop. Insights into cloud and Devops. Enterprise db concepts such as transactions and locking. Sub-queries.
Week 15b	Dec 01	Beyond Dev2: server-side technologies, hosting, CMS Next-generation development <i>Special Topics</i>
	<b>Dec 02</b>	Group Website Final Build due 11:59pm
	<i>Dec 08</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](http://policy.usc.edu/scampus-part-b). Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on [Research and Scholarship Misconduct](#).

### Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University’s educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at [osas.usc.edu](http://osas.usc.edu). You may contact OSAS at (213) 740-0776 or via email at [osasfrontdesk@usc.edu](mailto:osasfrontdesk@usc.edu).

### Support Systems:

**Counseling and Mental Health** - (213) 740-9355 – 24/7 on call

[studenthealth.usc.edu/counseling](http://studenthealth.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](http://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), press “0” after hours – 24/7 on call

[Studenthealth.usc.edu/sexual-assault](http://Studenthealth.usc.edu/sexual-assault)

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

**Office for Equity, Equal Opportunity, and Title IX (EEO-TIX)** - (213) 740-5086

[eeotix.usc.edu](http://eeotix.usc.edu)

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

**Reporting Incidents of Bias or Harassment** - (213) 740-5086 or (213) 821-8298

[usc-advocate.symplicity.com/care\\_report](http://usc-advocate.symplicity.com/care_report)

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

**The Office of Student Accessibility Services (OSAS)** - (213) 740-0776

[osas.usc.edu](http://osas.usc.edu)

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

**USC Campus Support and Intervention** - (213) 821-4710

[campussupport.usc.edu](http://campussupport.usc.edu)

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

**Diversity, Equity and Inclusion** - (213) 740-2101

[diversity.usc.edu](http://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](http://dps.usc.edu), [emergency.usc.edu](http://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](http://dps.usc.edu)

Non-emergency assistance or information.

**Office of the Ombuds** - (213) 821-9556 (UPC) / (323) 442-0382 (HSC)

[ombuds.usc.edu](http://ombuds.usc.edu)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

**Occupational Therapy Faculty Practice** - (323) 442-3340 or [otfp@med.usc.edu](mailto:otfp@med.usc.edu)

[chan.usc.edu/otfp](http://chan.usc.edu/otfp)

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.