



CSCI 571: Web Technologies

Term: Fall 2023

Units: 4

Lecture: Tue, Thu 5:00p.m.-6:50p.m., SGM 124 (30221D)
Tue, Thu 7:00p.m.-8:50p.m., SGM 124 (30143D)
Tue, Thu 5:00p.m.-6:50p.m., DEN@Viterbi (30117D)
The lectures will also be on Zoom and D2L for DEN students.

Instructor: Marco Papa, Ph.D.

Office: PHE 516

Office Hours: Thursday 2:30-3:30p.m.

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Course Producers and Graders: Listed in D2L and Piazza

Course Description

This course focuses on the phenomenon known as the World Wide Web. Its focus is to present many of the core technologies that the Web is based upon. These core technologies include:

- HTML and CSS (HyperText Markup Language and Cascading Style Sheets)
- HTTP (HyperText Transfer Protocol) 1.1/2/3
- Web servers, their configuration and performance properties
- Client-side Programming Using JavaScript
- Ajax (Asynchronous JavaScript & XML) and JSON (JavaScript Object Notation)
- Server-side Programming Using Python and JavaScript

In addition, the course will also cover the following subsidiary topics:

- Web Services (REST)
- Web Security and Privacy Tools
- Web Technologies for Mobile Phones (Android and iOS)
- Responsive Website Design
- Cloud Computing (Amazon Web Services, Google Cloud Platform and Microsoft Azure)
- Angular, React and Node.js
- Serverless Applications, Microservices, Containers
- AWS Lambda, Google Cloud Functions, and Azure Functions
- Dicerware, TOR, and the Dark Web
- MongoDB Atlas

The course is recommended for students with deep knowledge of at least two programming languages (JavaScript, Java, Python, C#, C++).

Learning Objectives

Course Outcomes (expected after you've finished the course)

i	The ability to write RESTful API applications;
ii	The ability to set up Cloud services;
iii	The ability to design and code back-end scripts in Python and JavaScript;
iv	The ability to design and code front-end Web Applications;
v	The ability to design and code Mobile Apps in Swift/SwiftUI or Java/Kotlin;
vi	The ability to design and code web front-end asynchronous applications using AJAX;
vii	The ability to design and code responsive web apps;
viii	The ability to use JavaScript in writing front-end programs;
ix	The ability to use HTML and CSS in designing graphical user interfaces;
x	The ability to read Web Services API documentation and use it in building Web applications;
xii	The ability to write Microservices and Containers.

Graduates of the program will have an ability to:

1	Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2	Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements.
3	Communicate effectively in a variety of professional contexts.
4	Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

Prerequisite(s): None.

Course Notes

The lectures will be given live, in-person, but the 5:00p.m. lecture will also be available live and recorded on-demand and made available on D2L exclusively to DEN students. DEN's D2L will be used for hosting the course materials (slides, labs, homework, assignments) and grades, and Zoom will be used for live streaming the lectures to DEN students. DEN's D2L will be used by students for uploading completed assignments and taking quizzes and exams.

In-person and Online Lectures

Lectures will be held live, in-person, in SGM 124, and on Zoom exclusively for DEN-enrolled students. Zoom Meeting link will be available on DEN.

Technological Proficiency and Hardware/Software Required

We will be using HTML, CSS, JavaScript, Python, Swift/SwiftUI (for iOS) or Java/Kotlin (for Android) in this class. Those pieces of software are available for free and will run on macOS, Windows and Linux (except for Swift/SwiftUI that will only run on Xcode on macOS). Students are required to have a laptop, running Windows, macOS or Linux, for exams. Windows and macOS laptops are available for check out, 4 hours at a time, through the [USC Computing Center Laptop Loaner Program](#). USC Technology Support Links: [Zoom information for students](#), [DEN D2L](#).

Required Readings and Supplementary Materials

The course does not use any textbook.

Description and Assessment of Assignments

The course includes 4 individual assignments. Assignment #1 covers basic HTML and CSS to build a static web site. Assignment #2 covers a dynamic web front-end and a cloud back-end, written in Python, to access third party REST APIs. Assignment #3 adds additional front-end functionality using Responsive Design and changes the cloud back-end to NodeJS. Assignment #4 replaces the front-end web app with a mobile native front end for iOS or Android. Each assignment serves to measure student performance on at least one or more learning objectives.

Participation

No credit is provided for participation.

Grading Breakdown

Assessment	% of Grade
Assignments	60%
Written Exam #1	20%
Written Exam #2	20%
TOTAL	100%

Grading Scale

Grades are not curved but based on proficiency with the material. Ranges operates in favor of the students. At the end of the semester, if the average in the class is lower than 80%, the average will become the cut-off between a B- and a C+. Because of the generous scale, final scores will not be rounded up.

$x \geq 93$	A	$73 \leq x < 77$	C
$90 \leq x < 93$	A-	$70 \leq x < 73$	C-
$87 \leq x < 90$	B+	$67 \leq x < 70$	D+
$83 \leq x < 87$	B	$63 \leq x < 67$	D
$80 \leq x < 83$	B-	$60 \leq x < 63$	D-
$77 \leq x < 80$	C+	$x < 60$	F

Assignments Weights

Assignments have different maximum points and weights, contributing to 60% of the total score.

Assignment	Maximum Points	Weight
#1	10	20%
#2	10	20%
#3	15	30%
#4	15	30%
TOTAL	50	100%

Assignment Submission Policy

Assignments will be discussed in class and worked on individually. Discussion among students is fine, but no copying of other student's code is allowed. The first 3 assignments need to run online, and grading will only occur if the web applications are able to be run. The last "mobile" assignment, the final comprehensive project, will be submitted by video during finals week. Assignments source code and links to the online web apps will be submitted to DEN's D2L (instructions will be provided in class and on Piazza) and are due by 11:59p.m. on the due date (see Late Policy below). Grading criteria will be provided with the assignment description. Graders will grade the assignments. All grades will be posted to D2L's gradebook.

Grading Timeline

Assignments will typically be graded within 7 days of the due date. Exams are usually auto graded by DEN's D2L Quiz Tool.

Course Specific Policy - Regrading

Once grades are entered into D2L's gradebook, students will be able to request a regrade if they think a mistake has been made in the grading through the following process:

1. Once an assignment is graded, an online form will be provided on Piazza, to submit a formal regarding request. Note that this is the only request that can be made to regrade that specific assignment, so be sure to include all relevant information. If the request is submitted more than 2 days after form is posted, the request will be denied.
2. The TA will review the request and determine if a regrade will be granted.
 - a. If the regrade request is denied, the original grade will stand.
 - b. If the regrade request is granted, the TA will forward the request to a grader (possibly a different one than who originally graded it). The grader will conduct a regrade and send the updated grade to the TA, who will then enter it into D2L.
3. There will be **only one regrade request**, and the score after the regrade is final. If any questions arise beyond that, the student will need to speak with the professor in person.
4. There is no regrade of the final comprehensive project, due on Finals Week.

Course Specific Policy - Late Policy

There is no late policy on any assignment submissions. All assignments must be submitted by 11:59p.m. on the due date or will receive a 0. In exceptional circumstances, late submissions will be accepted, with a 30% penalty.

Attendance

There is no lecture attendance requirement that counts towards your grade in the class. However, students who do not attend the lectures are responsible for all material covered in the lectures. The course uses the Piazza online forum platform to efficiently simulate and manage class discussions. Discussions are limited to course materials, assignments, and exams. Following all postings on Piazza is also required.

Exams

Exam #1	Tuesday, October 3, 2023.	5:00p.m. or 7:00p.m. (40 min)
Exam #2	Thursday, November 30, 2023.	5:00p.m. or 7:00p.m. (40 min)

The written exams consist of theoretical questions and may include code to be analyzed. No code will be required to be written. All exams are in-person, using the DEN's D2L Quiz Tool.

An exam can only be taken on the scheduled date and at the scheduled starting time. Accommodations for students with letters from OSAS will be provided, though the exam will still need to be taken on the scheduled date and start time, unless a specific accommodation has been granted by OSAS. There are no makeup exams. If you miss an exam due to an emergency, official written documentation, whatever that may be based on the situation, will need to be submitted to me as soon as you are physically able (before the exam if possible). Approval will be solely based on my discretion though it should be based on a documented illness or emergency. Based on the exam, here are the rules that will be followed:

- If an excuse is not approved, you will be given a 0 on the exam.
- If there is an approved excuse for written exam #1, the percentage for that exam will be added to the percentage for written exam #2.
- If there is an approved excuse for written exam #2, you will receive an Incomplete grade in the course and must make up the exam based on the conditions of an Incomplete.

Academic Integrity

The University of Southern California is foremost a learning community committed to fostering successful scholars and researchers dedicated to the pursuit of knowledge and the transmission of ideas. Academic misconduct is in contrast to the university's mission to educate students through a broad array of first-rank academic, professional, and extracurricular programs and includes any act of dishonesty in the submission of academic work (either in draft or final form).

This course will follow the expectations for academic integrity as stated in the [USC Student Handbook](#). All students are expected to submit assignments that are original work and prepared specifically for the course/section in this academic term. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s). Students suspected of engaging in academic misconduct will be reported to the Office of Academic Integrity.

Other violations of academic misconduct include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see the [student handbook](#) or the [Office of Academic Integrity's website](#), and university policies on [Research and Scholarship Misconduct](#).

Please ask me if you are unsure about what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

Collaboration. In this class, you are expected to submit work that demonstrates your individual mastery of the course concepts.

Group work. Unless specifically designated as a 'group project,' all assignments are expected to be completed individually.

Accordingly, all assignments #1 through #4 are individual assignments.

Computer programs. Plagiarism includes the submission of code written by, or otherwise obtained from someone else, including a source like ChatGPT.

If found responsible for an academic violation, students may be assigned university outcomes, such as suspension or expulsion from the university, and grade penalties, such as a zero on the assignment, exam, and/or “F” in the course.

Course Content Distribution and Synchronous Session Recordings Policies

USC has policies that prohibit recording and distribution of any synchronous and asynchronous course content outside of the learning environment.

Recording a university class without the express permission of the instructor and announcement to the class, or unless conducted pursuant to an Office of Student Accessibility Services (OSAS) accommodation. Recording can inhibit free discussion in the future, and thus infringe on the academic freedom of other students as well as the instructor. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

Distribution or use of notes, recordings, exams, or other intellectual property, based on university classes or lectures without the express permission of the instructor for purposes other than individual or group study. This includes but is not limited to providing materials for distribution by services publishing course materials. This restriction on unauthorized use also applies to all information, which had been distributed to students or in any way had been displayed for use in relationship to the class, whether obtained in class, via email, on the internet, or via any other media. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

Course Evaluations

Course evaluation occurs at the end of the semester university wide. It is an important review of students’ experience in the class. The intent of the end-of-semester evaluation is to provide an evaluation of the course, the instructor, and whether the learning objectives have been achieved. In addition, the instructor will provide an online [mid-semester evaluation](#) that will be used for early course correction.

Inclusion

It is my intention that students from all backgrounds and perspectives will be well served by this course, and that the diversity that students bring to this class will be viewed as an asset. I welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, socioeconomic background, family education level, ability – and other visible and nonvisible differences. All members of this class are expected to contribute to a respectful, welcoming, and inclusive environment for every other member of the class. Your suggestions are encouraged and appreciated.

Lived Name / Pronoun

I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records.

Lecture and Exam Schedule

Week	Lecture	Date	Lecture Topic	Assignment Due Dates	Homework Topic
1	1	August 22, 2023	Introduction		GitHub Pages
	2	August 24, 2023	Internet and Web Basics		
2	3	August 29, 2023	HTML		
	4	August 31, 2023	Style Sheets (CSS)		
3	5	September 5, 2023	JavaScript Basics		
	6	September 7, 2023	JSON	Assignment #1	
4	7	September 12, 2023	Server-Side Scripts in Python		
	8	September 14, 2023	Document Object Model (DOM)		
5	9	September 19, 2023	Forms and CGI Mechanism		Cloud Setup (Python)
	10	September 21, 2023	Web Servers		
6	11	September 26, 2023	JavaScript Advanced		
	12	September 28, 2023	HTTP and Networking Theory		
7	13	October 3, 2023	Written Exam #1		
	14	October 5, 2023	Web Server Performance	Assignment #2	
8	15	October 10, 2023	Web Services and REST		
		October 12-13, 2023	No Class – Fall Recess		
9	16	October 17, 2023	Ajax		
	17	October 19, 2023	Responsive Website Design		
10	18	October 24, 2023	JavaScript Frameworks		Cloud Setup (NodeJS)
	19	October 26, 2023	jQuery		
11	20	October 31, 2023	High Performance Websites		
	21	November 2, 2023	React and React Native		
12	22	November 7, 2023	Mobile App Development (Android)	Assignment #3	
	23	November 9, 2023	Mobile App Development (iOS)		
13	24	November 14, 2023	Serverless Applications		
	25	November 16, 2023	Cookies and Privacy		
14	26	November 21, 2023	Cloud HTML5: the Next Generation		
		November 22-26	Thanksgiving Break		
15	27	November 28, 2023	Web Security		
	28	November 30, 2023,	Written Exam #2		
16	29	December 7, 2023	Final Project Demonstrations (On video) + Documentation	Assignment #4	

Statement on Academic Conduct and Support Systems

Academic Conduct

Office of Academic Integrity – (213) 764-4163

academicintegrity.usc.edu

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 [The USC Student Handbook](#), in the section titled “Integrity and Accountability”. Other forms of academic dishonesty are equally unacceptable. The course uses the MOSS tool to check for plagiarism. All incidents of plagiarism will be reported to the *Office of Academic Integrity*.

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. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

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

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

[988 Suicide and Crisis Lifeline](#) - 988 for both calls and text messages – 24/7 on call

The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

[Relationship and Sexual Violence Prevention Services \(RSVP\)](#) - (213) 740-9355(WELL) – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

[Office for Equity, Equal Opportunity, and Title IX \(EEO-TIX\)](#) - (213) 740-5086

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

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 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) 740-0411

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

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

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) 442-1200 – 24/7 on call

Non-emergency assistance or information.

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

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) 442-2850 or otfp@med.usc.edu

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