



CSCI 201: Principles of Software Development Spring 2021, 4 units

Lecture: Tue, Thu 5:30p.m.-6:50p.m., ONLINE (30112R)
The lectures will also be on DEN.

Labs: Monday 12:00-1:50p.m., SAL 109 & ONLINE (30039R)
Tuesday 3:30-5:20p.m., SAL 109 & ONLINE (29929R)
Tuesday 5:30-7:20p.m., SAL 109 & ONLINE (29931R)
Wednesday 10:00-11:50a.m., SAL 109 & ONLINE (29930R)
Wednesday 12:00-1:50p.m., SAL 127 & ONLINE (30380R)
Thursday 10:00-11:50a.m., SAL 126 & ONLINE (30110R)
Thursday 3:00-4:50p.m., SAL 109 & ONLINE (30040R)
Friday 8:00-9:50p.m., SAL 126 & ONLINE (30017R)

Quiz: TBA, ONLINE (29981R)
Only used for exams and final presentations.

Instructor: Marco Papa, Ph.D.

Office: ONLINE

Office Hours: Monday 5:00p.m.-6:00p.m.

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Course Producers: Listed in Online labs section

Course Description

Object-oriented paradigm for programming-in-the-large in Java; writing sophisticated concurrent applications with animation and graphical user interfaces; using professional tools on team project.

Learning Objectives

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

i	The ability to understand software engineering in terms of requirements, design, and implementation;
ii	An understanding of how to use interaction diagrams to help define requirements;
iii	The ability to produce a software design based on requirements;
iv	The ability to produce software, including graphical user interfaces, from a design;
v	The ability to unit test a module;
vi	An understanding of concurrency and how it works in computer operating systems;
vii	The ability to write multi-threaded programs and correctly solve a mutual exclusion problems using semaphores or monitors;
viii	The ability to use Java in writing programs;
ix	The ability to use HTML and CSS in designing graphical user interfaces;
x	The ability to use messaging as a communication method;
xii	The ability to apply a software engineering process to a large software project;
xiii	The ability to work effectively on a team;
xiv	An understanding of the ethical issues in working within a group;

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 in the context of the program's discipline.
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.
5	Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

Prerequisite(s): CSCI 104L – Data Structures and Object-Oriented Design

Course Notes

The course will have both lectures and labs. The lectures will be given live but they will also be recorded and made available on DEN to students who are unable to attend the live lecture. DEN's D2L will be used for the course material and grades, and Zoom will be used for live streaming the lectures. DEN will be used for uploading completed assignments.

Online Lectures

Lectures will be held live on Zoom.

Lectures are held 5:30pm-6:50. Zoom Meeting link available on DEN.

Online labs

The TA/CPs will lead the lab section each week. There will be an assigned lab program each week that reinforces the topics covered in the lectures. The labs are intended to be completed during the lab period, and you are expected to work **individually** on the lab during the section. The lab assistants are there to answer any questions and help you, so use your time in lab wisely. You will be asked one or more questions by the lab assistants at the end of each lab to ensure you understood what was covered. We will not video record labs, because during the lab no new material will be taught. Here are the lab schedule and zoom links:

30039R	Monday	12:00-1:50p.m.	Ryan	https://usc.zoom.us/j/2693569852
30039R	Monday	12:00-1:50p.m.	Param	https://usc.zoom.us/j/4483419965 (on week of Wellness Days: 3/12, 3/23, 4/22)
29929R	Tuesday	3:30-5:20p.m.	Varun	https://usc.zoom.us/j/4827452307
29931R	Tuesday	5:30-7:20p.m.	Alex	https://usc.zoom.us/j/5315912081
29930R	Wednesday	10:00-11:50a.m.	Patrick	https://usc.zoom.us/j/8838507769
30380R	Wednesday	12:00-1:50p.m.	Swapnil	https://usc.zoom.us/j/5972371761
30110R	Thursday	10:00-11:50a.m.	Andrew	https://usc.zoom.us/j/9603043397
30040R	Thursday	3:00-4:50p.m.	Randall	https://usc.zoom.us/j/3439397859
30017R	Friday	8:00-9:50p.m.	Mark	https://usc.zoom.us/j/8329553844

Technological Proficiency and Hardware/Software Required

We will be using Java, Eclipse, IntelliJ IDEA (optional), Tomcat, and MySQL in this class. Those pieces of software are available for free and will run on both Mac and Windows laptops. The installations will be done as part of different labs throughout the semester.

Required Readings and Supplementary Materials

The following textbook will be used for reference and is optional to purchase.

Liang, Y. Daniel. Introduction to Java Programming and Data Structures, Comprehensive Version, 11th Edition, Prentice Hall, Inc., 2017. ISBN 978-0134670942

Grading Breakdown

Assessment	% of Grade
Labs	10%
Assignments	20%
Weekly Quizzes	10%
Group Project	30%
Written Exam #1	15%
Written Exam #2	15%
TOTAL	100%

Grading Scale (Preliminary)

Grades will be based on a curve that operates in favor of the students, with at least the following grades for a given percentage x. If the average in the class is lower than 80%, the average will become the cut-off between a B- and a C+. (**Important Note: this grading scale is subject to change before the start of Spring classes**).

$x \geq 93$	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

Grading Timeline

Assignments will typically be graded within 7 days of the due date. Exams are usually graded within a few hours of being completed. Labs will be graded during the lab section in which they are assigned. Final project deliverables will typically be graded within 2 days of the due date. Weekly quizzes will be graded by Blackboard automatically.

Assignment 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 program needs to compile, and grading will only occur if the program is able to be run. Assignments will be submitted to DEN (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. Due to the manual grading, we require you to submit an Eclipse project. All grades will be posted to DEN's gradebook.

Once grades are entered into DEN'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. Within five days of receiving the grade on an assignment, submit a formal request with the online form. 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 five days after the grades are 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 Blackboard.
3. There will only be one regrade request, and the grade after the regrade is final. If any questions arise beyond that, the student will need to speak with the professor in person.

Late Policy

Each student will have **three (3) grace days** to use during the semester for submitting assignments late. Grace days can only be used on *assignments* (**not** labs, final project deliverables, exams, weekly quizzes, etc.), and the days can be used in any combination. For example, you could use two grace days on assignment 1 and one grace day on assignment 2. All submissions other than for assignments in accordance with this policy must be submitted by 11:59p.m. on the due date or will receive a 0.

After the three grace days have been used, any assignment submitted late will receive a 0. A grace day will be counted for any assignment submitted after 11:59p.m. on the due date. To state that another way, if an assignment is submitted at 12:00a.m. (midnight) or later, grace days will be used. The grace days do not need to be approved by the professor, but any exceptions other than grace days will need professor approval.

Final Project

The project in the class will be assigned approximately half-way through the semester. You are required to submit a project proposal. Once we receive all proposals, CPs will create project groups. As a group you will have weekly meetings with your CPs/TAs. The project will consist of between 6-8 students. Formal documentation following the software engineering process will be required. The project will be discussed in class with the corresponding due dates. The project deliverables will be submitted via DEN by ZIP files and recorded video and are due by 11:59p.m. on the due date (see Late Policy).

Labs

The TA/CPs will lead the lab section each week. There will be an assigned lab program each week that reinforces the topics covered in the lectures. The lab assignments will be graded based on effort, attendance, completion, and understanding. The labs are intended to be completed during the lab period, and you are expected to work on the lab during the section. The lab assistants are there to answer any questions and help you, so use your time in lab wisely. You will be asked one or more questions by the lab assistants at the end of each lab to ensure you understood what was covered. If you cannot answer the questions, the lab assistants can deduct points from your lab grade. Each lab 1-8 is worth 0.8% of the final grade, and each lab 9-12 is worth 0.9% of the final grade and the total lab score is out of 10%. We will not video record labs, because during the lab no new material will be taught.

Attendance

There is no lecture attendance requirement that counts towards your grade in the class. However, students who do not attend lecture are responsible for everything covered in lecture. The lectures will be recorded and posted on DEN for students to watch if they are unable to attend a lecture.

Weekly Quizzes

There will be weekly quizzes in DEN that must be completed each week. This will ensure that students are attending/watching the lectures and understanding some of the concepts covered. The weekly quizzes are worth 10% of the course grade, with 1% given each week. There will be 13 weeks that contain weekly quizzes (no weekly quizzes during the midterm week or presentation weeks). There is no extra credit if more than 10% is earned for weekly quizzes.

Exams

Exam #1	Tuesday, March 16, 2021	All day PDT
Exam #2	Tuesday, May 11, 2021	All day PDT

The written exams are closed book and will consist of theoretical questions and may have code to be analyzed, though very little code will be required to be written. All written exams are ONLINE ONLY (using the 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 DSP will be provided, though the exam will still need to be taken on the scheduled date. 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.

Lecture and Exam Schedule

Chapter references are from Y. Daniel Liang, *Introduction to Java Programming and Data Structures, Comprehensive Version, 11th Edition*, Prentice Hall, 2017. ISBN 978-0134670942. Low-cost, digital rental link available here: <https://redshelf.com/book/753012/introduction-to-java-programming-and-data-structures-comprehensive-version-subscription-753012-9780134700144-y-daniel-liang>

Week	Lecture	Date	Lecture Topic	Chapter	Lab Topic
1	1	January 19, 2021	Introduction, Environment, Methods	1-8	<i>No Lab</i>
	2	January 21, 2021	Classes, Packages, File I/O	9-10	
2	3	January 26, 2021	Inheritance, Abstract Classes and Interfaces, Polymorphism	11, 13	DEN D2L, Environment Setup
	4	January 28, 2021	Garbage Collection, Exception Handling, Serialization, Generics	12, 19	
3	5	February 2, 2021	Concurrent Computing	32	Inheritance
	6	February 4, 2021	Thread Methods, Thread Pools, Thread Priorities	32	
4	7	February 9, 2021	Concurrency, Monitors	32	Threads
	8	February 11, 2021	Locks, Conditions	32	
5	9	February 16, 2021	Semaphores, Parallel Computing	32	Locks and Monitors
	10	February 18, 2021	Producer/Consumer, Multi-Threaded Programming Design		
6	11	February 23, 2021	Software Engineering, Testing, Project Description		Parallel Computing
	12	February 25, 2021	Networking Theory	33	
7	13	March 2, 2021	Networking Theory (cont.)	33	Software Engineering, GitHub Tutorial
	14	March 4, 2021	Network Programming	33	
8	15	March 9, 2021	Multi-Threaded Network Programming	33	Networking Worksheet
	16	March 11, 2021	Exam Review - Databases	34	
9		March 16, 2021 All day PDT	Written Exam #1	1-13, 19, 32	<i>No Lab</i>
	17	March 18, 2021	SQL	34	
10		March 23, 2021	No Class – Wellness Day		MySQL Installation
	18	March 25, 2021	JDBC	3435	
11	19	March 30, 2021	HTML, CSS		JDBC
	20	April 1, 2021	HTML/CSS Programming	37-38	
12	21	April 6, 2021	Java Servlets	37-38	Web Server
	22	April 8, 2021	JavaScript		
13	23	April 13, 2021	AJAX		Java Servlets
	24	April 15, 2021	Web Sockets		
14	25	April 20, 2021	Cloud Computing, Serverless, Containers		JavaScript and AJAX
		April 22, 2021	No Class – Wellness Day		
15	26	April 27, 2021	Guest lecture: Agile Computing, Mark DuVall, CTO		<i>No Lab</i>
	27	April 29, 2021	Final Project Demonstrations (On video) + Documentation		
16		May 11, 2021 All day PDT	Written Exam #2	1-13, 19, 32-35, 37-38	

Assessments Schedule

NOTE: The first 8 labs are worth 0.8% each, and the last 4 labs are worth 0.9% each. The percentages add to 103% because the quizzes add to 13.0%. See sections on Labs and Weekly Quizzes for more information.

Week	Day	Due Date	Assessment	% of Grade
1	Sunday	January 24, 2021	Quiz #1	1.0%
2	Monday-Friday	January 26-29, 2021	Lab #1	0.8%
	Sunday	January 31, 2021	Quiz #2	1.0%
	Sunday	January 31, 2021	Assignment #1	4.0%
3	Monday-Friday	February 1-5, 2021	Lab #2	0.8%
	Sunday	February 7, 2021	Quiz #3	1.0%
4	Monday-Friday	February 8-12, 2021	Lab #3	0.8%
	Sunday	February 14, 2021	Quiz #4	1.0%
5	Monday-Friday	February 15-19, 2021	Lab #4	0.8%
	Sunday	February 21, 2021	Quiz #5	1.0%
6	Monday-Friday	February 22-26, 2021	Lab #5	0.8%
	Friday	February 26, 2021	Assignment #2	5.0%
	Sunday	February 28, 2021	Quiz #6	1.0%
7	Monday-Friday	March 1-5, 2021	Lab #6	0.8%
	Monday-Sunday	March 1-7, 2021	FP – Weekly Meeting #1	0.5%
	Sunday	March 7, 2021	FP – Project Proposal	1.0%
	Sunday	March 7, 2021	Quiz #7	1.0%
8	Monday-Thursday	March 8-11, 2021	Lab #7	0.8%
	Friday	March 12, 2021	No Lab – Wellness Day	
	Monday-Sunday	March 8-14, 2021	FP – Weekly Meeting #2	0.5%
	Sunday	March 14, 2021	FP – High-Level Requirements	2.0%
	Sunday	March 14, 2021	Quiz #8	1.0%
9	Monday-Sunday	March 15-19, 2021	FP – Weekly Meeting #3	0.5%
	Tuesday	March 16, 2021	Written Exam #1	15%
	Sunday	March 21, 2021	FP – Technical Specifications	2.0%
10	Monday-Friday	March 22-26, 2021	Lab #8	0.8%
	Tuesday	March 23	No Lab – Wellness Day	
	Monday-Sunday	March 22-28, 2021	FP – Weekly Meeting #4	0.5%
	Sunday	March 28, 2021	FP – Detailed Design	3.0%
	Sunday	March 28, 2021	Quiz #9	1.0%
	Sunday	March 28, 2021	Assignment #3	5.0%
11	Monday-Friday	March 29-April 2, 2021	Lab #9	0.9%
	Monday-Sunday	March 29-April 4, 2021	FP – Weekly Meeting #5	0.5%
	Sunday	April 5, 2021	FP – Testing Document	2.0%
	Sunday	April 5, 2021	FP – Peer Review #1	1.0%
	Sunday	April 5, 2021	Quiz #10	1.0%
12	Monday-Friday	April 5-9, 2021	Lab #10	0.9%
	Monday-Sunday	April 5-11, 2021	FP – Weekly Meeting #6	0.5%
	Sunday	April 11, 2021	FP – Deployment Document	1.0%
	Sunday	April 11, 2021	Quiz #11	1.0%
13	Monday-Friday	April 12-16, 2021	Lab #11	0.9%
	Monday-Sunday	April 12-18, 2021	FP – Weekly Meeting #7	0.5%
	Sunday	April 18, 2021	FP – Peer Review #2	1.0%
	Sunday	April 18, 2021	Quiz #12	1.0%
14	Monday-Friday	April 19-23, 2021	Lab #12	0.9%
	Thursday	April 22, 2021	No Lab – Wellness Day	
	Monday-Sunday	April 19-25, 2021	FP – Weekly Meeting #8	0.5%
	Sunday	April 25, 2021	FP - Complete Documentation	1.0%
	Sunday	April 25, 2021	FP – Code Complete	2.0%
	Sunday	April 25, 2021	Quiz #13	1.0%
	Sunday	April 25, 2021	Assignment #4	6.0%
15	Thursday	April 29, 2021	Final Project Demonstrations	10%
16	Tuesday	May 11, 2021	Written Exam #2	15%

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. 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

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

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 and Services (RSVP) - (213) 740-9355(WELL), press “0” after hours – 24/7 on call
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
eetix.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. 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. The university also prohibits sexual assault, non-consensual sexual contact, sexual misconduct, intimate partner violence, stalking, malicious dissuasion, retaliation, and violation of interim measures.

Reporting Incidents of Bias or Harassment - (213) 740-5086
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 IX *Public CARE Report* for appropriate investigation, supportive measures, 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.

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 as early in the semester as possible. For exams, we will set up Quiz Tool to allow 1.5 or 2.0 total time, as appropriate.

Campus Support & Intervention - (213) 821-4710

campussupport.usc.edu

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.