San José State University
College of Science/Department of Computer Science
CS151, Object-Oriented Design
Sections 1, 2, and 3
Spring Semester, 2025

Course and Contact Information

Instructor

- Jon Pearce
- Office Location: DH 439
- Telephone: TBA
- Email: jon.pearce@sjsu.edu

Office Hours

- MW 1:30 – 3:00 in DH 439
- By appointment on Zoom

Lectures

- Section 1: MW 10:30 – 11:45 in MH 422
- Section 2: MW 12:00 – 1:15 in MH 422
- Section 3: MW 3:00 – 4:15 in MH 222

Note: All lectures are IN PERSON

Prerequisites

- Math 42, CS46B, and CS49J (or equivalent knowledge of Java) with a grade of C- or better in each.

Course Description

Design of classes and interfaces. Object-oriented design methodologies and notations. Design patterns. Generics and reflection. Exception handling. Graphical user interface programming. Software engineering concepts and tools. Required team-based assignments.

Section Description

Students will be introduced to the above concepts through a series of projects, some of which will be team-based.

Course Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Interpret and produce UML class diagrams.
2. Develop use-case models
3. Select and apply key design patterns in the construction of a software application.
4. Be able to follow a systematic OO design methodology
5. Create a class hierarchy involving existing and new interfaces and classes, including inner classes.
6. Design, implement, test, and debug large Java programs
7. Use generic types, reflection, and lambda expressions
8. Catch and throw exceptions
9. Implement concurrent programs and thread-safe objects
10. Use a GUI toolkit to create a graphical user interface involving frames, txt components, panels, menus, and simple geometric shapes.
11. Document use cases for a team project.
12. Plan and manage a team project
13. Use version control and build systems.

Required Texts/Readings

Lecture note and other materials will be posted at CS151 Course Website:

- https://www.cs.sjsu.edu/faculty/pearce/modules/courses/Spring25/CS151/index.htm

Other equipment / material requirements

Students should bring laptops to class with the following software should be installed:
- IntelliJ IDEA with the Java 17 VM
- StarUML

Course Requirements and Assignments

There will be several projects. Some will be team projects. In addition, there may be several in-class labs. Both labs and projects will require students to be proficient in writing and debugging Java programs.

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in [University Policy S12-3](#) *at* [http://www.sjsu.edu/senate/docs/S12-3.pdf.](http://www.sjsu.edu/senate/docs/S12-3.pdf)

Grading Scheme

Course grades will be determined by computing a weighted average of all submitted work using the following weights:

Assignments	60%
Midterm	15%
Final	25%
TOTAL	100%

Weights of individual assignments appear on the [course assignments page](#).

The averages appearing in Canvas are not weighted and do not correspond to your course grade.

Assuming a normal distribution of weighted averages, I will use the following scheme for computing letter grades:

A	94% - 100%
A-	90% - 93%

B+	87% - 89%
B	84% - 86%
B-	80% - 83%
C+	77% - 79%
C	74% - 76%
C-	70% - 73%
D+	67% - 69%
D	64% -66%
D-	60% - 63%
F	0% - 59%

Classroom Protocol

Students should bring laptops to class and be prepared to work together on in-class labs.

Late Homework Policy

Canvas will deduct 3 points for each hour an assignment is late.

Academic Dishonesty Policy

Students are expected to do their own work on assignments and exams. Sharing or copying code (except code explicitly provided by the instructor or in the context of a team project) is cheating. Students will receive a 0 on any exam or assignment that contains plagiarized material. Cheating on the final exam may also result in failing the course. Students should not consult work from previous semesters as there will be subtle changes designed to prevent reusing old work.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and

Undergraduate Programs' [Syllabus Information web page](#) at http://www.sjsu.edu/gup/syllabusinfo/

Course Schedule

Below is a tentative schedule of topics and activities. The instructor reserves the right to make changes to the schedule with fair warning. Exact due dates of assignments are given on the Assignments Page (see below).

Week	Week	Topics	Projects
1	1/27, 1/29	Software Engineering, Requirements Modeling	
2	2/3, 2/5	Requirements and Domain Modeling	MoveMe
3	2/10, 2/12	Domain Modeling, Design Patterns	MoveMe
4	2/17, 2/19	Design Patterns, Graphical User Interfaces	Turtle Graphics
5	2/24, 2/26	Graphical User Interfaces, Model-View-Controller Architecture	Turtle Graphics
6	3/3, 3/5	Model-View Controller Architecture	
7	3/10, 3/12	Version control, Teamwork, Multithreading	Mine Field on MVC
8	3/17, 3/19	Multithreading, Agent-Based Architecture	Mine Field on MVC
9	3/24, 3/26	Midterm Review, Midterm	
		Spring Break	
10	4/7, 4/9	Agent-Based Architecture	Tragedy of the Commons on SimStation
11	4/14, 4/16	Distributed Architectures	Tragedy of the Commons on SimStation
12	4/21, 4/23	Distributed Architectures	Calculator on Echo
13	4/28, 4/30	Container-Component Architecture	Calculator on Echo
14	5/5, 5/7	Container-Component Architecture	Calculator on SmartBox
15	5/12	Final Review	Calculator on SmartBox

Assignment details can be found through the course [assignments page](#).

Final Exams

Sec 1	Friday	16-May	10:45 - 12:45
Sec 2	Tuesday	20-May	10:45 - 12:45
Sec 3	Wednesday	14-May	1:00 – 3:00