# Object-Oriented Design Section 09

## CS 151

Spring 2024   3 Unit(s)   01/24/2024 to 05/13/2024   Modified 01/17/2024

# 👤 Contact Information

## Instructor: Apoorva Mohite

**Email:** apoorva.mohite@sjsu.edu

**Classroom:** MacQuarrie Hall 422

**Class Days/Time:** Tue/Thu 9:00 AM to 10:15 AM

## Office Hours

Tuesday, Thursday, 10:15 AM to 11:15 AM

Location: DH 282/282A or https://sjsu.zoom.us/j/84965283579?pwd=bEdUWnpoME51NnRUYVd0R3BvMzJ3QT09 (https://www.google.com/url?q=https://sjsu.zoom.us/j/84965283579?pwd%3DbEdUWnpoME51NnRUYVd0R3BvMzJ3QT09&sa=D&source=calendar&ust=16928545253733081&usg=AOvVaw3iQPQKCGKXDZrHhU_OQvz8)

# 💻 Course Description and Requisites

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

Prerequisite(s): MATH 42, CS 46B, and [(CS 48 or CS 49J) if CS 46B was not in Java], each with a grade of "C-" or better; Allowed Declared Majors: Computer Science, Applied and Computational Math, Software Engineering, or Data Science;ï¿½or instructor consent.

Letter Graded

# ✳ Classroom Protocols

Cheating will not be tolerated. Use of AI tools is not permitted. Exams or quizzes shall not be re-administered without approval from the instructor for unforeseeable reasons.

# ▤ Program Information

Diversity Statement - At SJSU, it is important to create a safe learning environment where we can explore, learn, and grow together. We strive to build a diverse, equitable, inclusive culture that values, encourages, and supports students from all backgrounds and experiences.

# ◎ Course Goals

1. Understand the fundamentals of object-oriented design and programming in Java.
2. Be aware of various methodologies and principles in software design and development.
3. Have the ability to design, implement, and document an application using best practices.

# � Course Learning Outcomes (CLOs)

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

1. Write code, unit tests, resolve defects and adapt to existing code in Java.
2. Analyze, design and visualize complex systems using object oriented design patterns.
3. Create interactive graphical user interfaces using Java.

# 📕 Course Materials

## (Optional) Head First Object-Oriented Analysis and Design

**Author:** Brett McLaughlin, Gary Pollice, David West
**Publisher:** O'Reilly Media, Inc.
**ISBN:** 0596008678
Optional
**Availability:** https://learning.oreilly.com/library/view/head-first-object-oriented/0596008678/

## (Optional) Head First Design Patterns

**Author:** Eric Freeman, Elisabeth Robson
**Publisher:** O'Reilly Media, Inc.
**Edition:** 2nd Edition
**ISBN:** 9781492077992
Optional
**Availability:** https://learning.oreilly.com/library/view/head-first-design/9781492077992/

# ☷ Course Requirements and Assignments

# Quizzes (10%)

There will be short weekly in-class quizzes. The purpose of these quizzes is to encourage students to read and understand the concept through the course material. The objective of these quizzes is to help students understand the concepts better and apply them in the assignments and in preparation for the midterm and final.

# Assignments (25%)

There will be several programming assignments involving OO programming, OO design, and UML diagrams. All assignments are individual. Late assignments will be accepted with a deduction of 10% points per day. Assignments are due on Fridays 11:59 PM

# Midterm and Final (20% each)

There will be one midterm and one final consisting of MCQs and written answers. Questions can come from quizzes, class notes, slides, assignments, and from discussions in class.

# Project (20%)

A group project with 3 members per group involving OO design and demonstrating concepts learned in the class. Use of AI is strictly prohibited.

# Participation (5%)

To encourage participation 5% of your final grade will come from your participation. Note that participation is NOT equal to attendance.

# ✔ Grading Information

## Breakdown

| Grade | Range | Notes |
|-------|-------------|-------|
| A+ | 96 to 100% | |
| A | >92 to 96% | |
| A- | >89 to 92% | |
| B+ | >86 to 89% | |
| B | >83 to 86% | |
| B- | >79 to 83% | |
| C+ | >76 to 79% | |

| Grade | Range | Notes |
|---|---|---|
| C | >73 to 76% | |
| C- | >69 to 73% | |
| D+ | >65 to 69% | |
| D | >62 to 65% | |
| D- | >59 to 62% | |
| F | 59% and below | |

## Criteria

| Type | Weight | Topic | Notes |
|---|---|---|---|
| Quizzes | 10% | | |
| Assignments | 25% | | |
| Midterm | 20% | | |
| Final | 20% | | |
| Project | 20% | | |
| Participation | 5% | | |

# 🏛 University Policies

Per University Policy S16-9 (PDF) (http://www.sjsu.edu/senate/docs/S16-9.pdf), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on the Syllabus Information (https://www.sjsu.edu/curriculum/courses/syllabus-info.php) web page. Make sure to visit this page to review and be aware of these university policies and resources.

# 📅 Course Schedule

The schedule below is tentative and may change as we progress through the semester.

| When | Topic | Notes |
|---|---|---|

| When | Topic | Notes |
|---|---|---|
| Week 1<br>01/25 | Introduction to Course, Syllabus Discussion | |
| Week 2<br>01/30, 02/01 | Java Recap - Functions, Packages, Classes and Objects | |
| Week 3, 4 & 5<br>02/06 - 02/22 | The 4 pillars of OOP | Assignment 1 due |
| Week 6<br>02/27, 02/29 | UML | |
| Week 7<br>03/05, 03/07 | Revision | Midterm |
| Week 8, 9<br>03/12, 03/14, 03/19 | JavaFX GUI | Assignment 2 due |
| Week 9, 10<br>03/21, 03/26, 03/28 | Design Patterns | |
| Week 11, 12<br>04/09, 04/11, 04/16 | Concurrent Programming | Assignment 3 due, Project Status Check |
| Week 12, 13<br>04/18, 04/23 | Exception Handling, Testing | |
| Week 13<br>04/25 | Generics, Reflection | |
| Week 14<br>04/30 | SOLID Design Principles | Assignment 4 due |
| Week 14, 15<br>05/02, 05/07 | Project Presentations | |
| Week 16<br>05/09 | Revision | |
| Final Exam<br>05/15/2024<br>7:15 AM - 9:30 AM | | |