SJSU SAN JOSÉ STATE UNIVERSITY

College of Science · Computer Science

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=1692854525373081&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 01/25	Introduction to Course, Syllabus Discussion	
Week 2 01/30, 02/01	Java Recap - Functions, Packages, Classes and Objects	
Week 3, 4 & 5 02/06 - 02/22	The 4 pillars of OOP	Assignment 1 due
Week 6 02/27, 02/29	UML	
Week 7 03/05, 03/07	Revision	Midterm
Week 8, 9 03/12, 03/14, 03/19	JavaFX GUI	Assignment 2 due
Week 9, 10 03/21, 03/26, 03/28	Design Patterns	
Week 11, 12 04/09, 04/11, 04/16	Concurrent Programming	Assignment 3 due, Project Status Check
Week 12, 13 04/18, 04/23	Exception Handling, Testing	
Week 13 04/25	Generics, Reflection	
Week 14 04/30	SOLID Design Principles	Assignment 4 due
Week 14, 15 05/02, 05/07	Project Presentations	
Week 16 05/09	Revision	
Final Exam 05/15/2024 7:15 AM - 9:30 AM		