

Object-Oriented Design Section 06

CS 151

Fall 2023 3 Unit(s) 08/21/2023 to 12/06/2023 Modified 08/21/2023

Contact Information

Instructor:	Deep Shah
Office Location:	Online
Email:	deeppradipbhai.shah@sjsu.edu
Office Hours:	Tu/Th 7:00 PM – 8:00 PM PST or by appointment (via. Zoom https://sjsu.zoom.us/j/86536665808)
Class Days/Time:	Tu/Th 10:30 AM – 11:45 AM
Classroom:	CL 238 (Clark Building)

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 49J (or equivalent knowledge of Java) (with a grade of "C-" or better in each); Allowed Declared Majors: Computer Science, Applied and Computational Math, Software Engineering, or Data Science; or instructor consent.

Letter Graded

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 Learning Outcomes (CLOs)

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

1. Java Language:

- a. Write code for fundamental concepts of OOP
 - b. Be familiar with Java constructs
 - c. Implement exception handling, threads, lambda expressions, java generics, and so on
2. OO Design and principles:
 - a. Follow a systematic object-oriented design methodology
 - b. To explore & understand the principles of Object Oriented Programming (OOP)
 - c. Use several design patterns
 - d. Interpret and produce UML diagrams
 3. GUI Programming:
 - a. Create a GUI that enables users to communicate with a computer through the use of symbols, visual metaphors, and pointing devices

Course Materials

I will not be following any specific textbook for this course.

Further Readings

1. Cay Horstmann, "Object-Oriented Design & Patterns," 3rd edition.
ISBN: 9780471744870

The resources can be found at: <http://horstmann.com/oodp3/>

2. Stephen Gilbert and Bill McCarty, "Object-Oriented Design in Java," Sams
ISBN-13: 978-1571691347
3. The references at the end of lecture notes.

Course Requirements and Assignments

- Java is the standard programming language for this course. Having enough knowledge about it is essential for this course.
- There would be a term project requiring students to work in groups to create a project that uses Object Oriented Design principles.
- All assignments in this course are individual assignments and will involve OO Programming, OO Design, Java Programming, and UML diagrams. Late submissions will not be accepted.
- There will be one mid-term and one final exam consisting of MCQs and written answers.
- The weights of these above-mentioned assessment activities are given below. Their tentative schedule could be found in the week-wise schedule of the course.

Grading Information

Grading Criteria

<i>Grade</i>	<i>Percentage</i>
Assignments	30%
Midterm	20%
Project	30%
Final	20%

Grading Scale

<i>Grade</i>	<i>Percentage</i>
A plus	95% to 100%
A	90% to 94%
B plus	85% to 89%
B	80% to 84%
C plus	75% to 79%
C	70% to 74%
D plus	65% to 69%
D	60% to 64%
F	< 60%

University Policies

Per [University Policy S16-9 \(PDF\)](http://www.sjsu.edu/senate/docs/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) (<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

Note: This is a tentative schedule.

When	Date	Topic	Notes
Week 1	08/22	Course Intro, Syllabus Discussion	
	08/24	Enter OOP Part 1	

Week 2	08/29	Enter OOP Part 2	
	08/31	Software Development Lifecycle	
Week 3	09/05		
	09/07		
Week 4	09/12	OOP Fundamentals: Abstraction, Inheritance, Encapsulation, Polymorphism	Assignment 1 Due
	09/14		
Week 5	09/19		
	09/22		
Week 6	09/26	Revision	Assignment 2 Due
	09/28	Midterm	Midterm Exam
Week 7	10/03	UML, Project Discussion	
	10/05		
Week 8	10/10	GUI Programming	Project Proposal Due
	10/12		
Week 9	10/17	Java Constructs: Abstract class, Nested class, Anonymous class, Lambda expressions	
	10/19		
Week 10	10/24	Design Patterns	Assignment 3 Due
	10/26		
Week 11	10/31	Implementation Guidelines, Project Check-in	Project Check-in
	11/02	Exception Handling	
Week 12	11/07	Concurrent Programming	Assignment 4 Due
	11/09		
Week 13	11/14	Generics, Iteration, Reflection, Advanced Java	

	11/16		
Week 14	11/21		Assignment 5 Due
	11/23	Holiday: Thanksgiving Day. No Classes.	
Week 15	11/28	Project Presentations	Project Presentations
	11/30		
Final Exam	12/13	Wednesday, 9:45 AM – 12:00 PM	Final Exam