

**San José State University**  
**Computer Science Department**  
**CS151, Object-Oriented Design, 06, Fall, 2022**

**Course and Contact Information**

Instructor(s): Abhishek Gaikwad

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Office Hours: Mon/Wed 3:15 – 4:15 PM (via. Zoom <https://sjsu.zoom.us/j/6306253552>).

Class Days/Time: Mon/Wed 4:30 - 5:45 PM

Classroom: MH223

Prerequisites: MATH 42, CS 46B, and CS 49J (or equivalent knowledge of Java)

**Course Description**

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.

**Course Format**

Technology Intensive, In-person

**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 (CLO)**

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

1. Java Language:
  - a. Implement Program
  - b. Write code
  - c. Perform unit testing
  - d. Integrate subsystems
  - e. Resolve defects and revise and adapt existing code
2. OO Design and principles:
  - a. To explore & understand the principles of Object Oriented Programming (OOP)
  - b. Improve the quality and productivity of system analysis and design by making it more usable.
  - c. 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.

## Required Texts/Readings

I will not be following any specific textbook for this course. Here are some of the links which might be helpful if you are stuck in assignments:

- [Java Documentation](#)
- [Stack Overflow](#)
- The references at the end of each presentation

## Further Readings

1. Cay Horstmann, "Object-Oriented Design & Patterns," 3rd edition.  
ISBN: 9780471744870  
The resources can be found at: <http://horstmann.com/oodp3/>
2. Eric Freeman, Elisabeth Freeman, with Kathy Sierra and Bert Bates, "Head First design patterns,"  
1st ed.  
ISBN: 9780596007126

## Course Requirements and Assignments

- **Programming Assignments (25 %)**  
There will be several programming assignments involving OO programming, OO design, and UML diagrams. All assignments are individual. Late assignments will not be accepted.
- **Quizzes (10 %)**  
There will be short quizzes after each chapter. 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.
- **Project (20 %)**  
A group project with 3 members per group in the last month of the semester involves the OO design and GUI programming.
- **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.
- **Class Participation (5 %)**  
To encourage participation 5 % of your final grade will come from your participation.  
Note that participation is NOT equal to attendance.

[University Policy S16-9](#), *Course Syllabi requires the following language to be included in the syllabus:*

“Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practice. Other course structures will have equivalent workload expectations as described in the syllabus.”

## Final Examination or Evaluation

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.

## Grading Information

<i>Grade</i>	<i>Percentage</i>
Assignments	25%
Quizzes	10%
Project	20%
Midterm	20%
Final	20%
Participation	5%

## Grading Scale

<i>Grade</i>	<i>Percentage</i>
A plus	96 to 100%
A	93 to 95%
A minus	90 to 92%
B plus	86 to 89 %
B	83 to 85%
B minus	80 to 82%
C plus	76 to 79%
C	73 to 75%
C minus	70 to 72%
D plus	66 to 69%
D	63 to 65%
D minus	60 to 62%
F	59% and below

## University Policies

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

Students registered for a College of Science (CoS) class with an in-person component should view the [CoS COVID-19 and Monkeypox Training](#) slides for updated CoS, SJSU, county, state, and federal information and guidelines, and more information can be found on the [SJSU Health Advisories](#) website. By working together to follow these safety practices, we can keep our college safer. Failure to follow safety practice(s) outlined in the training, the SJSU Health Advisories website, or instructions from instructors, TAs, or CoS Safety Staff may result in dismissal from CoS buildings, facilities, or field sites. Updates will be implemented as changes occur (and posted to the same links).

# CS151-06, Object-Oriented Design, Fall 2022 Schedule

## Course Schedule

Date	Title	Description	Logistics
08/22	Great Software Begins Here	Introduction to Course, Syllabus Discussion, Java Recap, Packages, Attributes, Methods, Modifiers, Encapsulation, Introduction to OO Design	
08/24			
08/29	Modelling the world	Functions in Java, Packages, Classes and Objects, Constructors and Destructors	HW1 OUT.
08/31			
09/05	Labor Day	HOLIDAY. CAMPUS CLOSED.	
09/07	Object-oriented way of becoming #wealthy	Inheritance	QUIZ 1. HW1 DUE.
09/12	"BIG BRAIN ENGINEERING"	Polymorphism, Abstraction, Inner Class, Interfaces.	HW2 OUT.
09/14			QUIZ 2.
09/19	Bringing Order to Chaos	UML Diagrams: Class, Sequence, and State. Design Documentation.	HW 2 DUE. HW 3 OUT.
09/21			QUIZ 3.
09/26		Revision	HW 3 DUE.
09/28		MIDTERM 1.	
10/03	"It works on my machine"	Exception Handling, (discussing midterm)	PROJECT OUT.
10/05			HW 4 OUT
10/10	Taking your code into the real world	GUI	QUIZ 4
10/12			HW 4 DUE. HW 5 OUT.
10/17	Originality is Overrated	Design Patterns	
10/19			HW5 DUE
10/24	"All code is guilty until proven innocent"	Iterating and Testing	QUIZ 5
10/26			PROJECT CHECK-IN
10/31	Putting it all together	the ooa&d lifecycle	HW 6
11/02			
11/07	Modern Software Developers Toolbox	Software engineering concepts and tools	HW 6 DUE
11/09			HW 7 OUT

<b>Date</b>	<b>Title</b>	<b>Description</b>	<b>Logistics</b>
11/14	With great performance comes great memory management responsibility	Concurrent Programming	QUIZ 6
11/16			
11/21		Guest Speaker.	HW 7 DUE
11/23		Non-Instructional Day. No Classes.	
11/28		Project Presentation	PROJECT DUE
11/30			
12/05		Revision	
12/14	The Great Battle For Our Semester	FINAL EXAM	
	Venue and Time		