San José State University
College of Science/Department of Computer Science
CS151, Object-Oriented Design, Section 1, Fall, 2019

Course and Contact Information

Instructor:	Nada Attar
Office Location:	MH 218
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Email:	nada.attar@sjsu.edu
Office Hours:	M 1:45-2:45pm | W 1:45-2:45pm
Class Days/Time:	M/W12:00-1:15pm
Classroom:	SH 100

Course Format

Faculty Web Page and MYSJSU Messaging

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on my faculty web page at http://www.sjsu.edu/people/firstname.lastname and/or on Canvas Learning Management System course login website at http://sjsu.instructure.com. You are responsible for regularly checking with the messaging system through MySJSU at http://my.sjsu.edu (or other communication system as indicated by the instructor) to learn of any updates.

Prerequisite

MATH 42, CS 46B, or CS 49J (or equivalent knowledge of Java) (with a grade of "C-" or better in each); Computer Science, Applied and Computational Math or Software Engineering majors only; or instructor consent

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 assignments.

Course Objectives

1. OO Design:
   - Introduce core UML concepts
   - Introduce a simplified OO analysis and design methodology
   - Present the concept of design pattern
   - Present the concept of a software framework
2. Java Language
   - Make students proficient in the use and creation of interfaces and inheritance hierarchies
   - Make students proficient in the Java type system
   - Introduce threads and thread safety

3. Software Engineering:
   - Introduce a GUI toolkit, including basic widgets and the event handling mechanism
   - Introduce basic software engineering concepts and tools

Course Learning Outcomes (CLO)

1. OO Design
   - Interpret and produce UML class diagrams and UML sequence diagrams
   - Develop simple use cases, perform noun-verb analysis, interpret and produce CRC cards
   - Appropriately select and apply key design patterns in the construction of a software application
   - Be able to follow a systematic OO design methodology
2. Java language
   - Create a class hierarchy involving existing and new interfaces and classes, including inner classes.
   - Design, implement, test, and debug programs in an object-oriented language, involving the creation of at least 10 classes and interfaces
   - Use generic types, reflection, and lambda expressions
   - Implement concurrent programs and use thread-safe data structures
3. Software Engineering
   - Use a GUI toolkit to create a graphical user interface involving frames, buttons, text components, panels, menus, and simple geometric shapes
   - Be able to document use cases for a simple team project
   - Be able to plan and track a simple team project
   - Be able to use a version control system and an automated build system
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Required Texts/Readings

Textbook

Object-Oriented Design & Patterns, 3rd edition, by Cay Horstmann

Other Readings

- Handouts (through Canvas)

Course Requirements and Assignments

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 S12-3at http://www.sjsu.edu/senate/docs/S12-3.pdf.

Homework assignments will be individual, regularly assigned, will include written problem assignments, and perhaps some online exercises. Solutions will be not posted. The homework is a tool for you to learn the material and prepare you for the exams.

Piazza sign up link: piazza.com/sjsu/fall2019/cs151section1

Midterm exams:

There will be three written Midterm exams during the semester. The lowest one will be dropped.

Final Examination:

Section 1: Day: Monday, December 16 Time: 09:45-12:00pm
One written final cumulative exam.
The exams will contain multiple choice questions, short answer questions and questions that require pseudocode and/or computations. Students must obtain >50% in each component of the course (homework, project, quizzes & written exams) in order to be eligible for a passing grade.

Grading Information

Your grade for the course will be based on the following components:

- Mid Term Exams - 20%
- Final Exam - 25 %
- Final Project 20 % (report, implementation, and presentation) - Attendance is required
- Assignments 25%
- Labs - 5 % - Attendance is required
- Discretion - 10%

Discretion includes participation in classes and answering forum posts on Piazza.
Exams are closed book; final exam is comprehensive. No extra point options. No make-ups exams except in case of verifiable emergency circumstances

Determination of Grades

The following shows the grading scale to be used to determine the letter grade:

Percentage	Grade
95 and above	A+
92-94	A
90 - 91	A-
87 - 89	B+
83 - 86	B
80 - 82	B-
77 - 79	C+
73 - 76	C
70 - 72	C-
67 - 69	D+
63-66	D
60-62	D-
59 and below	F

Classroom Protocol

Attendance is highly recommended. Please avoid disturbing the class: turn-off cell phones (or put them on vibrate mode), no text messaging in the class or the exams, no taking pictures and video, avoid coming late. You may not publicly share or upload material for this course such as exam questions, lecture notes, or solutions without my consent.

University Policies (Required)

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/" Make sure to review these policies and resources.

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Course Schedule

Week	Date	Topics, Readings, Assignments, Deadlines
1	W 8/21	1. Introduction
1	M 8/26	2. Object-Oriented Design Process
2	W 8/28	
2	M 9/02	**No Class (Labor Day),** Note: Tuesday 9/03 is the Last Day to Drop the Course
3	W 9/04	3. Guidelines for Class Design
3	M 9/09	Lab I
4	W 9/11	4. Interface Types and Polymorphism
4	M 9/16	5. Patterns and GUI Programming
5	W 9/18	Lab II
5	M 9/23	**Midterm I**
6	W 9/25	6. Inheritance and Abstract Classes
6	M 9/30	7. The Java Object Model
7	W 10/02	Lab III
7	M 10/07	**Midterm II**
8	W 10/09	Model-View-Controller Frameworks
8	M 10/14	Jinja Templates
9	W 10/16	
9	M 10/21	User Data
10	W 10/23	Datastore & Queries
10	M 10/28	
11	W 10/30	8. Frameworks
11	M 11/04	9. Multithreading
12	W 11/06	
12	M 11/11	**No Class (Veterans Day)**
13	W 11/13	Lab V
13	M 11/18	**Midterm III**
14	W 11/20	Final Project
14	M 11/25	Final Project
15	W 11/27	**No Class (Thanksgiving Holiday)**
15	M 12/02	Final Project
16	W 12/04	Final Project
16	M 12/09	Final Project (Last day of instruction)
17	M 12/16	Final Exam: Time: 09:45-12:00pm