

San José State University
College of Science/Department of Computer Science
CS151, Object-Oriented Design, Section 5, Fall, 2018

Course and Contact Information

Instructor:	Dr. Katarzyna Tarnowska
Office Location:	MacQuarrie Hall (MH) 215
Telephone:	(408) 9245076
Email:	Katarzyna.tarnowska@sjsu.edu
Office Hours:	Monday & Wednesday, 10:30AM – 11:30AM
Class Days/Time:	Monday & Wednesday, 9:00AM – 10:15AM
Classroom:	Duncan Hall 450
Prerequisites:	Math 42, CS46B, and CS 49J (or equivalent knowledge of Java) with a grade of C- or better in each or instructor consent.

Course Format

Technology Intensive, Hybrid, and Online Courses

Students are required to bring their own laptops to the class or borrow laptops from the library (check Student Technology Resources at <http://www.sjsu.edu/gup/syllabusinfo/#StudentTechResources>) for the designated “lab” sessions.

Faculty Web Page and MYSJSU Messaging

Course materials such as syllabus, handouts, notes, assignment instructions, etc. will be published on Canvas Learning Management System course login website at <https://sjsu.instructure.com/courses/1263537>. You are responsible for regularly checking with the messaging system through [MySJSU](http://my.sjsu.edu) at <http://my.sjsu.edu> to learn of any updates.

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. Prerequisite: MATH 42, CS 46B, and 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 Goals

- 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
- 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
- GUI Programming:
 - Introduce a GUI toolkit, including basic widgets and the event handling mechanism

Course Learning Outcomes (CLO)

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

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 the following design patterns in the construction of a software application: Composite, Decorator, Iterator, Strategy, Template method, and Observer
 - 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
 - Implement correctly the equals, hashCode, clone, toString methods
 - Use serializaton, reflection, and generics
 - Throw, propagate and catch exceptions
3. GUI Programming
 - Use a GUI toolkit to create a graphical user interface involving frames, buttons, text components, panels, menus, and simple geometric shapes

Required Texts/Readings

Textbook

C. Horstmann, Object-Oriented Design & Patterns, 3rd edition. Online copy will be made available on Canvas for personal use of students enrolled in this section of the course- you must not share your copy with others.

Other Readings

- S. J. Metsker, W. C. Wake, Design Patterns in Java, 2nd edition, Addison-Wesley
- K. Arnold, J. Gosling and D. Holmes, The Java Programming Language, 4th Ed., Addison-Wesley.
- M. Fowler, UML Distilled, 3rd Ed., Addison-Wesley.
- E. Gamma et al., Design Patterns: Elements of Reusable Object-Oriented Software, Addison-Wesley.
- X. Jia, Object-Oriented Software Development Using Java: Principles, Patterns, and Frameworks, 2nd Ed., Addison-Wesley.

Other technology requirements / equipment / material

- Hardware: laptops in the classroom are required for “Lab” sessions.
- Software
 - Programming Language: [Java Platform SE 8](#)
 - [Download](http://www.oracle.com/technetwork/java/javase/downloads/index.html) at <http://www.oracle.com/technetwork/java/javase/downloads/index.html>
 - IDE:
 - [Eclipse](http://eclipse.org/) at <http://eclipse.org/>
 - Version control (for group projects)
 - SVN at <https://svnkit.com>
 - SVN for Eclipse at <https://www.eclipse.org/subversive/>
 - Git at <https://git-scm.com/>

- Team project 20% 20 points

- Letter grades will be assigned according to the following policy:

100 -99-----A+

93 – 98 ---- A

89 -- 92 ---- A-

87 -- 88---- 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-

0 -- 59 ---- F

- Each assignment and exam will be scored (given points) but not assigned a letter grade.
- Final individual class letter grades might be assigned based on the class curve - your final class grade can be adjusted up or down depending on your level and quality of class / project performance.
- No late work accepted or make-ups.

Classroom Protocol

- Attendance: students should attend all meetings of their classes ([University Attendance and Participation Policy F15-12](#)).
- Arrival: students are expected to arrive on time.
- Behavior: eating, personal loud discussions, cell phones are not allowed in the classroom.
- Policy on Academic Integrity
“Your commitment, as a student, to learning is evidenced by your enrollment at San Jose State University. The [University Academic Integrity Policy F15-7](#) requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. Visit the [Student Conduct and Ethical Development](#) website for more information.”
 - Any cheating on an exam will result in a grade of F in the class.
 - For the project, no collaboration outside own group is allowed
 - If duplicate programs/assignments are found, both the provider and the copier will receive 0 point on the assignment/project. A second offense results in a grade of F in the class.
 - Any incident of academic dishonesty can be reported to University for disciplinary action.

University Policies

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/>.

CS151 / Object-Oriented Design, Fall 2018, Course Schedule

Course Schedule

The schedule is subject to change with fair notice available to registered students through Canvas.

Week	Date	Topics, Readings, Assignments, Deadlines
1	8/22	Introduction to the course
2	8/27	A Crash Course in Java, Chapter 1
2	8/29	A Crash Course in Java, Chapter 1
3	9/3	Labor Day – Campus Closed
3	9/5	Lab 1
4	9/10	The Object-Oriented Design Process, Chapter 2
4	9/12	The Object-Oriented Design Process, Chapter 2
5	9/17	The Object-Oriented Design Process, Chapter 2
5	9/19	Guidelines for Class Design, Chapter 3
6	9/24	Lab 2– start working on team-based projects
6	9/26	Guidelines for Class Design, Chapter 3
7	10/1	Interfaces and Polymorphism, Chapter 4
7	10/3	Interfaces and Polymorphism, Chapter 4
8	10/8	Patterns and GUI Programming, Chapter 5
8	10/10	Patterns and GUI Programming, Chapter 5
9	10/15	Midterm
9	10/17	Lab 3
10	10/22	Inheritance and Abstract Classes, Chapter 6
10	10/24	Inheritance and Abstract Classes, Chapter 6
11	10/29	The Java Object Model, Chapter 7
11	10/31	The Java Object Model, Chapter 7
12	11/5	The Java Object Model, Chapter 7
12	11/7	Lab 4
13	11/12	Veterans Day – Campus Closed
13	11/14	Concurrent Programming, Chapter 9
14	11/19	Frameworks, Chapter 8

Week	Date	Topics, Readings, Assignments, Deadlines
14	11/21	Frameworks, Chapter 8
15	11/26	More Design Patterns, Chapter 10
15	11/28	More Design Patterns, Chapter 10
16	12/3	Lab 5
16	12/5	Lab 6 – Team projects due
Final Exam	12/12	DH 450, 7:15AM-9:30AM