Greensheet

CS 151: Object-Oriented Design
Fall 2015

San José State University
Department of Computer Science

Instructor Info

Name	**Ahmad Yazdankhah**	My name is difficult to pronounce!
Office	DH 282	
Email	ahmad.yazdankhah@sjsu.edu	Please don't use my personal email.
Website	Under construction	
Phone	(408) 924-5060	Email is the best way to communicate!
Office Hours	Friday 1630 – 1800	By appointment

Class Info

	Section 03	**Section 04**
Classroom	MacQuarrie Hall 422	MacQuarrie Hall 422
Meeting time	TR 1630-1745	TR 1800-1915
Course #	43458	43956
Final exam	Friday, Dec 11 @ 1445-1700	Thursday, Dec 10 @ 1715-1930
	MacQuarrie Hall 422	MacQuarrie Hall 422

Important Dates of Semester

Description	**Day**	**Month**	**Day #**	**Comment**
First day of instruction	Thursday	August	20	
Last day to drop	Tuesday	September	01	
Holiday	Monday	September	07	Labor Day
Last day to add	Wednesday	September	09	
Daylight saving time	Sunday	November	01	
Holiday	Wednesday	November	11	Veteran's Day
Holiday	Thursday	November	26	Thanksgiving
Last day of instruction	Tuesday	December	08	

Course Brief Info

Prerequisites

Math 42	Discrete Mathematics	Grade C- or better
CS 46B	Introduction to Data Structure	Grade C- or better

The Department of Computer Science strictly enforces prerequisites. If you are not already pre-enrolled, you must come to the first class meeting and pick up an Add-Form from the instructor. If applicable, show the instructor your card that indicates you're a graduating senior. It will be the instructor's and the department decision whether or not to send you an add-code by email.

Any student who does not show up during the first two class meetings may be dropped by the instructor.

Required Text

Cay Horstmann, "Object-Oriented Design & Patterns," 2nd edition, Wiley Publishers, Inc.

ISBN-13: 978-0471744870

Further Readings

The references at the end of each lecture note.

Course Detail Info

Catalog Description

Introduce students to the basic principles of object-oriented design, elements of UML, and design patterns. Cover the Java language features not yet seen in CS 46A and CS 46B. Teach basic GUI programming.

Course Objectives

- Object-Oriented Design
  - Introduce a simplified object-oriented analysis and design methodology
  - Introduce core UML concepts
  - 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.

Student Learning Outcomes

Upon successful completion of this course, you should be able to:

- Object-Oriented 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 object-oriented design methodology
- 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 serialization, reflection, and generics
    - Throw, propagate and catch exceptions
    - Implement threads and thread-safe data structures
- GUI Programming
    - Use a GUI toolkit to create a graphical user interface involving frames, buttons, text components, panels, menus, and simple geometric shapes.

Programming Assignments

- There will be several programming assignments that are individual and team based. For the team based projects, all team members will get the same grade.
- Each team is responsible for choosing a team lead and dividing up the work among the team members. Each team member is personally responsible for participating and contributing to the team's work, and for understanding each part of the work for every assignment whether or not s/he worked on that part.
- Students are required to read the assignment's requirement carefully and implement exactly what it wants. You'll lose points for any violation from the requirements accordingly. If any requirement is not clear to the students, that would be the students responsibility to request for clarifications.
- Programs must be appropriately documented via javadoc comments and should adhere to the coding style posted on the CS Department Java Coding Style page at http://www.cs.sjsu.edu/web_mater/java_code.html.

Exams

Every Tuesday, there would be a short quiz and there would also be two midterms, and a final exam. All examinations could be partially closed book (concepts) and partially open book (practical).

Instant messaging, e-mails, texting, tweeting, and any other type of communications with anyone else during the exams are strictly forbidden.

Grading Policy

Assignments	50%
Quizzes	15%
Mid #1	7%
Mid #2	13%
Final	15%
Total	**100%**

Nominal Grading Scale

From	To	Grade
97	100	A+
92	96.99	A
90	91.99	A-
88	89.99	B+
82	87.99	B
80	81.99	B-
78	79.99	C+
72	77.99	C
70	71.99	C-
68	69.99	D+
62	67.99	D
60	61.99	D-
0	59.99	F

Your final grade can be adjusted depending on your level and quality of participation in the class activities and on your team members' assessments of your performance.

To practice time management, late submissions will lose 20% of the assignment total score and an additional 20% for each 24 hours after the due date.

Note that "All students have the right, within a reasonable time, to know their academic scores, to review their grade-dependent work, and to be provided with explanations for the determination of their course grades." See University Policy F13-1 for more details at http://www.sjsu.edu/senate/docs/F13-1.pdf for more details.

Workload

Success in this course is based on the expectation that students will spend, at least 6 hours per week for working on the homework, team works, and the programming 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 S12-3 at http://www.sjsu.edu/senate/docs/S12-3.pdf.

Classroom Protocol

Please:

- ✓ Be on time!
- ✓ Participate in the class' activities as much as you can.
- ✓ Ask good questions and answer to the questions (in class and in the forum) as much as you can and get extra credit for them!
- ✓ Set your cell phones in silent mode and don't use them during the lectures.
- ✓ Be patient about strange and easy questions from students and me!

Attendance is recommended, but it is not mandatory, except for exam dates. Let's make a comfortable and respectful environment for presenting any idea.

NOTE that University policy F69-24 at http://www.sjsu.edu/senate/docs/F69-24.pdf states that "Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading."

University Policies

General Expectations, Rights and Responsibilities of the Student

As members of the academic community, students accept both the rights and responsibilities incumbent upon all members of the institution. Students are encouraged to familiarize themselves with SJSU's policies and practices pertaining to the procedures to follow if and when questions or concerns about a class arises. See University Policy S90–5 at http://www.sjsu.edu/senate/docs/S90-5.pdf. More detailed information on a variety of related topics is available in the SJSU catalog, at http://info.sjsu.edu/web-dbgen/narr/catalog/rec-12234.12506.html. In general, it is recommended that students begin by seeking clarification or discussing concerns with their instructor. If such conversation is not possible, or if it does not serve to address the issue, it is recommended that the student contact the Department Chair as a next step.

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester's Catalog Policies section at http://info.sjsu.edu/static/catalog/policies.html. Add/drop deadlines can be found on the current academic year calendars document on the Academic Calendars webpage at http://www.sjsu.edu/provost/services/academic_calendars/. The Late Drop Policy is available at http://www.sjsu.edu/aars/policies/latedrops/policy/**.** Students should be aware of the current deadlines and penalties for dropping classes.

Information about the latest changes and news is available at the Advising Hub at http://www.sjsu.edu/advising/.

Consent for Recording of Class and Public Sharing of Instructor Material

University Policy S12-7, http://www.sjsu.edu/senate/docs/S12-7.pdf, requires students to obtain instructor's permission to record the course and the following items to be included in the syllabus:

- "Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructor's permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material."
    - It is suggested that the greensheet include the instructor's process for granting permission, whether in writing or orally and whether for the whole semester or on a class by class basis.
    - In classes where active participation of students or guests may be on the recording, permission of those students or guests should be obtained as well.
- "Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent."

Academic integrity

Your commitment, as a student, to learning is evidenced by your enrollment at San Jose State University. The University Academic Integrity Policy S07-2 at http://www.sjsu.edu/senate/docs/S07-2.pdf 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. The Student Conduct and Ethical Development website is available at http://www.sjsu.edu/studentconduct/.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 at http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf requires that students with disabilities requesting accommodations must register with the Accessible Education Center (AEC) at http://www.sjsu.edu/aec to establish a record of their disability.

Course Schedule

Day	Date	Topics, Readings, Assignments, Deadlines
1	08/20	Greensheet in detail; My background; Knowing about students
2	08/25	From Problem to code; Analysis; Use cases; Design; Implementation
3	08/27	Object and class concepts; Identifying classes and responsibilities; Classes relationship
4	09/01	Quiz 1; prerequisite checking; forming teams; Dependency between classes
5	09/03	Describing term project; Aggregation; Inheritance; Use cases; use case template; CRC cards
6	09/08	Quiz 2; finalizing teams; UML class diagrams;
7	09/10	UML class diagram 2; UML Sequence diagram, UML state diagram; Introducing UML tools
8	09/15	Quiz 3; javaDoc; Art of programming; Guidelines for class design; Date class overview
9	09/17	Encapsulation; The Law of Demeter; Quality of an interface; Cohesion and Coupling
10	09/22	Quiz 4; Completeness; Convenience; Clarity; Consistency; Design by contract;
11	09/24	Precondition; Postcondition; Assertion; Exceptions; Class Invariants; Unit testing
12	09/29	Midterm 1
13	10/01	Scheduling presentations; guideline about how to present; GUI programming: Icon interface
14	10/06	1st teams presentations (5 teams)
15	10/08	1st teams presentations (4 teams)
16	10/13	Quiz 5; Interface types and polymorphism; Comparable interface; Comparator interface
17	10/15	1st students' feedback about the course; Anonymous classes; GUI: Frames
18	10/20	Quiz 6; GUI: Action listeners; Timers;
19	10/22	Announcing my extra sessions on Fridays; GUI: Drawing shapes; Designing an interface;
20	10/27	Quiz 7; Polymorphism 1;
21	10/29	Polymorphism 2; GUI: Layout managers; JPanel;
22	11/03	Quiz 8; Inheritance 1; Liskov Substitution Principle;
23	11/05	Inheritance 2
24	11/10	Midterm 2
25	11/12	GUI: Dragging shapes; Abstract classes
26	11/17	Java type system; Java generics 1; peer evaluation
27	11/19	Java generics 2; Introduction to design patterns
28	11/24	Scheduling presentations; Introduction to multithread programming
29	11/26	Thanksgiving Holiday
30	12/01	2nd teams presentations (5 teams)
31	12/03	2nd teams presentations (4 teams)
32	12/08	2nd students' feedback about the course; Introduction to Java reflection; Wrapping up the semester; where we are; what would be the next step? Review for final

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Venue	MacQuarrie Hall 422	MacQuarrie Hall 422