Course and Contact Information

Instructor: Vidya Rangasayee

Office Location: MH229

Telephone: (408) 924-5060

Email: vidya.rangasayee@sjsu.edu

Office Hours: TR 9:30am – 10:30am
(Additional hours by appointment)

Class Days/Time: TR 10:30am – 11:45am

Classroom: Science 164

Prerequisites: CS 46B – Introduction to Data Structures or equivalent programming experience.

Course Format: Technology Intensive

Faculty Web Page and MYSJSU Messaging

Course materials will be available on Canvas at https://sjsu.instructure.com Please use piazza for all course discussions including private messages to the instructor.

Course Description

Introduce students to the basic principles of OO Design, plus elements of UML and design patterns. Cover the Java language features not yet seen in CS1 and CS2. Teach basic GUI programming.

Course Learning Outcomes (CLO)

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

1. OO Design:
   a. Introduce core UML concepts
   b. Introduce a simplified OO analysis and design methodology
   c. Present the concept of design pattern
   d. Present the concept of a software framework

2. Java Language:
a. Make students proficient in the use and creation of interfaces and inheritance hierarchies
b. Make students proficient in the Java type system
c. Introduce threads and thread safety

3. GUI Programming:
   a. 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:

1. OO Design
   a. Interpret and produce UML class diagrams and UML sequence diagrams
   b. Develop simple use cases, perform noun-verb analysis, interpret and produce CRC cards
   c. Appropriately select and apply the following design patterns in the construction of a software application: Composite, Decorator, Iterator, Strategy, Template method, and Observer
   d. Be able to follow a systematic OO design methodology

2. Java language
   a. Create a class hierarchy involving existing and new interfaces and classes, including inner classes.
   b. Design, implement, test, and debug programs in an object-oriented language, involving the creation of at least 10 classes and interfaces
   c. Implement correctly the equals, hashCode, clone, toString methods
   d. Use serialization, reflection, and generics
   e. Throw, propagate and catch exceptions
   f. Implement threads and thread-safe data structures

3. GUI Programming
   a. 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

(This textbook is optional and used more as a guideline for the order of topics rather than content)

Other Readings

1. E. Gamma et al., Design Patterns: Elements of Reusable Object-Oriented Software, Addison-Wesley.

Other technology requirements / equipment / material

- Programming Language: Java Platform SE 7 or higher
  - It is available on all Department machines.

Object Oriented Design, CS151, Fall 2016
Course Requirements and Assignments

Programming assignments
There will be several programming assignments some of which are team based. For team based assignments, all members will get the same grade. Each team is responsible for choosing a team lead and dividing up the work among the team members. You are personally responsible for participating and contributing to your team's work, and for understanding each part of the work for every assignment whether or not you worked on that part.

Programs must be appropriately documented via javadoc comments and should adhere to the coding style posted on the CS Department web page: http://www.cs.sjsu.edu/web_mater/java_code.html.

Unless asked for specifically, all assignments must be submitted electronically. Instructions for this will be on the first assignment.

To learn time management, each assignment is worth a maximum of 100 points. Late assignments will lose 20 points and an additional 20 points for each 24 hours after the due date.

Exams
The midterm and final examinations will be open book, open notes. Instant messaging, e-mails, texting, tweeting, or other communication with anyone else during the exams will be considered cheating and strictly forbidden.

The current schedule for exams is
**Midterm**: see Course Schedule
**Final Exam**: See Course Schedule
* - all exams will be online on Canvas and will be open on the day of the exam.

Grading Policy
Your individual class grade will be weighted as follows:
60% Individual and Team Assignments
15% Midterm exam
25% Final exam

I first try scores of 90, 80, and 70 to cut off letter grades of A-, B-, and C-, respectively. If overall class performance is too low to use these cut offs, I set a cut off of C- to a lower score than the class total average but a higher score than 60 (this number may change), and divide the students' group above the cut off of C- into A+, A-, B+, B, B-, C+, C, C-. The rest of students will be given by a grade of D+, D, D-, F or WU depending on their class performance.
Classroom Protocol

Please:

- Be on time!
- No texting!
- Set your cell phones in silent mode!
- Participate in the class activities as much as you can.
- Be patient about strange, easy questions from students. Feel free to ask questions yourself.
- Let's make a comfortable and respectful environment for presenting any idea.
- **Start on your homework early and stay on top of them. Some assignments take way more time than you expect.**
- Have fun learning.

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, Fall 2016 - Course Schedule

*This is a tentative schedule for this semester. This is subject to change with sufficient notice and will be informed through Canvas/Piazza*

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics, Readings, Assignments, Deadlines</th>
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<tbody>
<tr>
<td>1</td>
<td>NA</td>
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<tr>
<td>1</td>
<td>8/25/2016</td>
<td>Introduction Object Oriented Design</td>
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<tr>
<td>2</td>
<td>8/30/2016</td>
<td>Object Oriented Concepts</td>
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<td>Object Oriented Concepts</td>
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<tr>
<td>3</td>
<td>9/6/2016</td>
<td>Guidelines for Class Design</td>
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<td>3</td>
<td>9/8/2016</td>
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<tr>
<td>4</td>
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<td>4</td>
<td>9/15/2016</td>
<td>Interface Types and Polymorphism</td>
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<td>Inheritance and Abstract Classes</td>
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<td>Inheritance and Abstract Classes</td>
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<td>10/20/16</td>
<td>MIDTERM (ONLINE)</td>
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<td>10/25/16</td>
<td>Java Object Model and Frameworks</td>
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<td>Databases and JDBC</td>
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<td>12/8/16</td>
<td>Project Demos/Finals Review</td>
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<td>Project Demos/Finals Review</td>
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<tr>
<td>17</td>
<td>12/15/16</td>
<td>Final Exam (WEDNESDAY) - ONLINE</td>
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