

**San José State University**  
**College of Science/Computer Science Department**  
**CS 251B, Object-Oriented Design, Section 1, Spring Semester, 2017**

**Course and Contact Information**

<b>Instructor:</b>	Pearce
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<b>Telephone:</b>	(408) 924-5065
<b>Email:</b>	jon.pearce@sjsu.edu
<b>Office Hours:</b>	Tuesday & Thursday, 1500 - 1630
<b>Class Days/Time:</b>	Tuesday & Thursday, 1300 - 1445
<b>Classroom:</b>	222 MacQuarrie Hall
<b>Prerequisites:</b>	CS 160 or instructor consent

**Faculty Web Page**

<http://www.cs.sjsu.edu/faculty/pearce/pearce.html>

**Course Description**

**Catalog description**

Course covers important concepts, activities, and artifacts of the design phase of object-oriented software development. Topics include design metrics, design patterns, refactoring, frameworks, and testing. Prerequisite: CS 160 or instructor consent.

**Section description**

Topics in the approximate order of presentation include: modeling collaborations using UML, Design principles, design patterns, and architecture patterns. Architecture patterns are implemented as frameworks.

**Course Learning Outcomes**

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

1. Create design models using UML and design patterns
2. Implement design models
3. Distinguish between good and bad designs

**Required Texts/Readings**

**Textbook**

*There is no text for this course. Lecture notes will be posted at:*

<http://www.cs.sjsu.edu/faculty/pearce/modules/lectures/ooa2/index.htm>

**Other Readings**

My lectures draw substantially from the following books:

*Pattern-Oriented Software Architecture, volume 1*; Buschmann, et. al.; Wiley; 1996.

*Design Patterns, Elements of Reusable Object-Oriented Software*; Gamma, et. al.; Addison-Wesley; 1994.

**Other technology requirements / equipment / material**

Star UML 2; <http://staruml.io/>

Eclipse IDE for Java Developers; <http://www.eclipse.org/downloads/>

**Course Requirements and Assignments (subject to change with fair notice)**

**Assignments**

There will be three types of assignments: labs, exercises, and projects. Labs are begun in class and completed at home. Exercises usually consist of multiple problems and are done outside of class. Projects are single problems requiring detailed solutions.

**Final Examination or Evaluation**

There will be a comprehensive final exam on Monday, December 19, from 945 – 1200. The exam will be posted and submitted through Canvas. Students will use their laptops to create UML diagrams and write code. Access to notes and Internet is permitted, but all forms of communication are forbidden (except with the proctor).

**Grading Information**

Assignments will be submitted through Canvas. Rubrics will be used to grade the assignments. Models will typically be judged on accuracy, completeness, and implementability.

There will also be a team project, which will be assigned after the midterm.

**Determination of Grades**

- Final Exam: 30%
- Midterm: 20%
- Team Project: 25%
- Weekly Assignments: 25%

Late assignments are accepted by prior arrangement with the instructor and only for compelling reasons.

Assuming a standard distribution of point totals I will use the following scale for assigning final grades:

A	85% - 100%
B	70% - 84%
C	55% - 69%
D	40% - 54%
F	0% - 39%

### Classroom Protocol

Students are expected to bring their laptops to class.

### 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](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>

### Final Exam

Tuesday, May 23, 12:15 – 14:30

### Course Schedule

*The tentative course schedule below is subject to change. Notification of changes will be made in class.*

Week	Dates	Topics/Activities
1	2/26	Syllabus
2	1/31 & 2/2	Overview SE, OOA, & OOP
3	2/7 & 2/9	Overview SE, OOA, & OOP
4	2/14 & 2/16	Modeling Collaborations in UML
5	2/21 & 2/23	Modeling Collaborations in UML
6	2/28 & 3/2	Design Principles, Patterns, & Metrics
7	3/7 & 3/9	Design Principles, Patterns, & Metrics
8	3/14 & 3/16	Pipeline Architectures
9	3/21 & 3/23	Midterm Review & Midterm
10	3/27 - 3/31	Spring Break
11	4/4 & 4/6	Model-View-Control Architecture
12	4/11 & 4/13	Model-View-Control Architecture
13	4/18 & 4/20	Agent-Based Architectures
14	4/25 & 4/27	Agent-Based Architectures
15	5/2 & 5/4	Creational Patterns
16	5/9 & 5/11	Open Architectures
17	5/16	Final Review
18	5/22 & 5/24	Finals