

CS 635 Advanced Object-Oriented Programming  
Fall Semester, 2019  
Syllabus  
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San Diego State University -- This page last updated 8/29/19

## CS 635 Syllabus

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Office Hours	3:30-5:15 pm Tuesday, Thursday,

**Course WWW Site:** <http://www.eli.sdsu.edu/courses/fall19/cs635/index.html>. All course handouts will be delivered via WWW at the above URL.

### Texts:

- Design Patterns: Elements of Reusable Object-Oriented Software, Gamma, Helm, Johnson, Vlissides, Addison-Wesley, 1995.
- Refactoring: Improving the Design of Existing Code On-line access via SDSU Library
- Object Coupling and Object Cohesion, chapter 7 of Essays on Object-Oriented Software Engineering, Vol. 1, Berard, Prentice-Hall, 1993, Will be on reserve at Love Library and at Cal Copy.
- Big Ball of Mud by Brian Foote and Joseph Yoder, <http://www.laputan.org/mud/mud.html>

**Prerequisites:** CS535 and working knowledge of Java, C++, Swift, Kotlin, Python 3.

This is a graduate course in object-oriented programming that assumes you have taken an undergraduate course in object-oriented programming and have a working knowledge of one of Java, C++, Swift, Kotlin, Python 3. In the recent past a number of students have taken this course without this background and done poorly in this course. February 3 is the last day to add or drop the course. Grades in this course are based only on performance of the student. Problems with languages (English and/or Java) are not considered in assigning grades.

**Grading:** Your grade will be based on two exams (50% of your grade) and homework (50% of your grade). If needed there will quizzes. There is no extra credit work in this course. There will be between 4 and 5 programming assignments. Missing a programming assignment may drop your course grade by considerably. Some assignments in this class may seem easy at first glance. This causes some students to delay starting the assignment. Often they find out too late that the assignment is harder than they think, which hurts their grade.

**Crash Policy:** SDSU is now using wait listing to fill empty seats in classes. Instructors have no control over who gets added to the course. As students drop out of the course other students will be added automatically.

**Late Policy:** Late homework will be accepted, but with a penalty. An assignment will lose 5% of the total value of the assignment per day late. Once a solution to an assignment has been posted or discussed in class, the assignment will no longer be accepted. Late penalties are always rounded up to the next integer value.

**Cheating:** Any one caught cheating will fail the course in the course and they will be reported to the SDSU Judicial Procedures Office.

**Course Goals and Outcomes:**

- Learn basic design patterns
- Understand when to apply design patterns to improve the quality of your code
- Understand the affects of coupling and cohesion on code quality

This will improve your ability to:

- Design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
- Use current techniques, skills, and tools necessary for computing practice.

**Topics covered in the course:**

- Coupling, Cohesion,
- Refactoring
- Unit testing
- Basic OO concepts and principles
- OO metrics
- Affect of functional programming features on design patterns
- Design Patterns
  - Abstract Factory, Builder, Factory Method
  - Prototype, Singleton, Adapter
  - Bridge, Composite, Decorator, Facade
  - Flyweight, Proxy, Chain of Responsibility
  - Command, Interpreter, Iterator
  - Mediator, Memento, Observer
  - State, Strategy, Template Method
  - Visitor, Pipes & Filters, Null Object

**Disabled Students:** If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to contact Student Disability Services at (619) 594-6473. To avoid any delay in the receipt of your accommodations, you should contact Student Disability Services as soon as possible. Please note that accommodations are not retroactive, and that accommodations based upon disability cannot be provided until you have presented your instructor with an accommodation letter from Student Disability Services. Your cooperation is appreciated.