

# SE450: Syllabus

## Sections 801/810

Fall 2017-2018

Monday 5:45 PM to 9:00 PM

### Contact Information

**Instructor:** Anthony Freund

**Home Page:**

**Email  
(Preferred):**

**Email (Other):**

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**Office:** CDM 428

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**Office Hours:** Monday 4:10pm-5:40pm in CDM 428

**Class Page:**

**Class Hours:** Monday 5:45pm-9:00pm in Lewis 1509 [Section 701]  
Online, Anytime [Section 710]

### Communication Policy

Submit general discussion questions and questions regarding lectures and homework to D2L. Many of your fellow students may be able to answer your question if I'm not online. Questions concerning homework grades should be sent to me, not the grader. I will follow up personally with the grader and address your concern.

### Overview

We will study object-oriented design and implementation. Among the topics of the course are:

- Principles of object-oriented programming languages.
- Principles of object-oriented design.
- UML class, object and sequence diagrams.
- Testing methodologies.
- Design Patterns.
- Advanced Java Techniques.

Java and the UML will be used for source code examples, homework assignments, and the exams.

### Objectives

By the end of this course you should:

- Have greatly improved programming skills.
- Have greatly improved design instincts.
- Be proficient with:
  - UML class and sequence diagrams
  - incremental/iterative development and refactoring
  - design patterns
  - testing

## Lecture Plan

The following lecture plan is tentative and subject to change as the course progresses.

- **Class 1:** [09/11] Basics of OO, Primitives, Objects, References, Interfaces, Inheritance, Casting, Polymorphism, Iterator, Homework 1
- **Class 2:** [09/18] Homework 1 Review, Polymorphism in depth, JVM, .class, .java, javac, java, SOLID, Coupling and Cohesion, Homework 2
- **Class 3:** [09/25] Homework 2 Review, UML, Architectural Patterns, Primitive Wrappers and Immutables. Immutable Pattern, Homework 3
- **Class 4:** [10/02] Homework 3 Review, Generics, Singleton, Factory, Homework 4
- **Class 5:** [10/09] Homework 4 Review, Midterm Preparation, Cloning Pattern, Comparable, custom Iterator
- **Class 6:** [10/16] Midterm
- **Class 7:** [10/23] Midterm Review, Final Project, Patterns
- **Class 8:** [10/30] Visitor, Facade, Flyweight
- **Class 9:** [11/06] Null Object, Composite, Memento, Bridge
- **Class 10:** [11/13] Filter, Command, Proxy, Final Exam Preparation
- **Class 11:** [11/20] Final Exam

Lecture slides will be available after each lecture. They will not normally be available before the lecture.

## Prerequisites

You *must* have the following:

- CSC403, CSC383 or CSC393 or equivalent courses on data structures (linked lists, stacks and queues, trees, graphs priority queues, hash tables).  
You should have written some *code* in this class. You should be happy *implementing* simple linked lists, stacks, queues, and trees. You should be happy *using* all of the above, plus priority queues and hash tables.
- CSC402, CSC 224 (or 211 and 212) or equivalent experience programming in Java.  
This course is *not* an introduction to Java.

If you do not have CSC403, CSC383 or CSC393, drop now.

Useful, but optional:

- CSC 447 Programming Languages (machine models and basic language principles)
- SE 430 Object-Oriented Modeling (OO analysis and the UML)
- CSC 406/407 or 373/374 Systems (language implementation/multi-threading)

## Textbooks

## Required Books

### Design Patterns Explained

Authors: Alan Shalloway, James Trott  
2nd Edition, 2005  
ISBN: 9780321247148

### Head First Design Patterns

Authors: Eric Freeman, Elisabeth Robson, Bert Bates, Kathy Sierra  
1st Edition, 2004  
ISBN: 9780596007126

## Required Language & Tools

### Java 1.8 JDK (8u144 Recommended)

### Eclipse Oxygen

Most students prefer *Head First Design Patterns*, but some prefer *Design Patterns Explained*. The original *Design Patterns* is a classic, but out of date; it is a decent reference, but a poor book to learn from for a beginner.

## Expectations

The course will be conducted using Java and some of its many APIs.  
I expect you to be able to work your way through the APIs without guidance from me.

The course requires that you actively engage the material on your own.  
You should not only read the example code given in class, but modify and run it.

**Spend at least a few hours a week playing with the examples given in class, or your own Java code.**

Testimonial from a former student:

As a side note, I've spent my summer giving my final project, 'MReversi' for Spring se450, a gui, unlimited undo/redo and tcp connectivity so players can play across a network. I've also ported a version to my Java capable phone with j2me. My next step is to give the phone version tcp capability so phone players can play computer players or whatever. **I could not have done this in this short time frame** (at least I think it's short) **if it wasn't for all the hard work we were made to do in se450**. Thanks! **"If it don't kill ya, it makes you stronger."** :-)

Another testimonial from a former student:

Overall, I enjoyed and learned a lot in SE450. To date, it has been the most time consuming class I've taken possibly ever so you were quite accurate in your warnings early on that we students need to seriously make time.

After many years of project work and software implementations at my day job, there was one thing in particular about the final project that, whether intentional or not, very accurately represented "real world" work. That is, the ambiguity of the assignment. No software project I've been involved in has ever been in neat, clearly defined,

package as many of the projects and assignments I've worked on at DePaul. Due to the complexity of what you were asking and a certain amount of open-endedness, it would have been less stressful to not have any other assignments during development of the final project, but again, real life doesn't always allow us the privilege of working on only one thing at a time.

## Attendance

You are responsible for understanding the material presented in class.

You are responsible for any announcements made in class or on the class mailing list.

**You must attend the midterm and final exams (unless you are in the DL section).**

- The midterm will be held 2017/10/16 in class from 6:00 PM to 8:15 PM.
- The final exam will be held 2017/11/20 in class from 6:00 PM to 8:15 PM.

A medical note will be required for an absence from exams. Business trips or vacations are not valid reasons for missing the exams.

**Block out these dates now!**

Online students can take exams remotely. Online dates will likely include the weekend before the in class date.

Class materials and recorded lectures are available online. Exams are proctored.

Read the policies here:

If you live in Chicago, you can take the exams at the Loop or Suburban campuses. If you live outside the Chicago area, you will need to find a proctor.

Your online section is paired with an on-campus section. These classes are recorded and uploaded into the Course Management system so you can view them within 24 hours of the live class. The first class is 2017/09/11. The lecture will be available online the following day.

## Assessment

There will be four initial weekly assignments before the midterm. After the midterm you will be given a final project with two parts followed by the final. The course grade will be computed as follows:

- Homework: 25%
- Midterm Exam: 25%
- Final Project: 25% (It is an individual, not group, project)
- Final Exam: 25%

Numerical grades correspond to letter grades roughly as follows:

93-100 = A  
90-92 = A-  
88-89 = B+  
83-87 = B  
80-82 = B-

etc...

Homework assigned in class is due the following week at 5:30PM before class. We will review it in class. It's strongly advised that you start on it early!

Homework assignments must be submitted through the online system. *Email submissions will not be accepted.*

Program submissions will be assessed on whether they achieve the set task *and* the quality of the code.

The midterm and final will be cumulative.

There will be no make-up exams nor extra credit assignments. If there is an extreme emergency and you must miss an exam, you must notify me in advance and provide documented evidence of the emergency.

Students in DL sections may take the course remotely. They may take the exam at times different from the in class section, usually within a few days. Exact details will be provided on COL closer to the exam date.

## Course Policies

**The syllabus may change as needed for the quarter.**

### Online Course Evaluations

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Students complete the evaluation online in CampusConnect.

### Academic Integrity and Plagiarism

This course will be subject to the university's academic integrity policy. More information can be found at <http://academicintegrity.depaul.edu/>. If you have any questions be sure to consult with your professor. Academic Policies All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the University Academic Calendar. Information on enrollment, withdrawal, grading and incompletes can be found at:

### Students with Disabilities

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential. To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD)

at: csd@depaul.edu. Lewis Center 1420, 25 East Jackson Blvd. Phone number: (312)362-8002 Fax: (312)362-6544 TTY: (773)325.7296

## **Attitude**

A professional and academic attitude is expected throughout this course. Measurable examples of non-academic or unprofessional attitude include but are not limited to: talking to others when the instructor is speaking, mocking another's opinion, cell phones ringing, emailing, texting or using the internet whether on a phone or computer. If any issues arise a student may be asked to leave the classroom. The professor will work with the Dean of Students Office to navigate such student issues.

## **Civil Discourse**

DePaul University is a community that thrives on open discourse that challenges students, both intellectually and personally, to be Socially Responsible Leaders. It is the expectation that all dialogue in this course is civil and respectful of the dignity of each student. Any instances of disrespect or hostility can jeopardize a student's ability to be successful in the course. The professor will partner with the Dean of Students Office to assist in managing such issues.

## **Cell Phones/On Call**

If you bring a cell phone to class, it must be off or set to a silent mode. Should you need to answer a call during class, students must leave the room in an undistruptive manner. Out of respect to fellow students and the professor, texting is not allowable in class. If you are required to be on call as part of your job, please advise me at the start of the course.

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