Fall 2017
SE 350: Object-Oriented Software Development
Instructor: Mona Rahimi
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Office Hours: Tuesday and Thursday – 3.30pm to 4.15pm

Course Objectives:

To expose students to principles and patterns of Object-Oriented Design and teach them to engineer elegant software systems. Students will become familiar with a wide variety of design patterns and Object-Oriented principles, will understand when each is relevant for use, integrate them into the design, and implement them as code. Students will develop greater proficiency in Java, and use of design patterns. During this course students will design, develop, and test a non-trivial application, describe their work in a verbal presentation, and develop a professional portfolio of their work.

Class Schedule:

Tuesday and Thursday from 1.30pm-3.00pm at CDM 218.

Homework:

Three homeworks will be assigned as shown in the class schedule. Late work will be accepted up to one week after the deadline. 10% penalty if submitted within 48 hours. 20% penalty if submitted within 7 days. Work will NOT be accepted beyond that without a doctor's note. Please note that (1) homework assignments and deadline dates will NOT change, and (2) you are expected to complete all homeworks.

You should expect to spend an average of 6 hours working on programming each week. The more effort you put into this course, the more you will take-away, so I encourage you to go above-and-beyond wherever possible.

Reading List:

- (Required) Object-Oriented Design and Patterns, 2nd edition, Horstmann, John Wiley & Sons, 2005. ISBN: 978-0-471-74487-0
- (Optional) Head First Design Patterns, Freeman, O'Reilly Media, 2004. ISBN: 978-0596007126
- (Optional) Design Patterns, Gamma, Helm, Johnson & Vlissides, Addison-Wesley/Pearson, 1995. ISBN: 978-0201633610
- (Optional) Design Patterns Explained: A New Perspective on Object-Oriented Design, 2nd edition, Shalloway & Trott, Addison-Wesley/Pearson, 2005. ISBN: 978-0321247148

What if you get stuck?
This is a programming course and you may find some of the assignments challenging. There are several things you can do if you get stuck:

1. Avoid getting stuck in the first place. Attend lectures, read the chapters, and most importantly program and test iteratively. We will discuss this in class.
2. Come to office hours and ask for extra help. Don't come to office hours with a big ball of mud. Come with specific questions. ALWAYS be able to revert to the previous version of the code (save your working code frequently). If you break something and you can't fix it – revert and start over. Save frequently – every time you achieve a small success.
3. Start your program assignment early. Don't wait for the last 24 hours.
4. Post a question to the homework discussion forum on D2L.
5. Use CDM Tutoring service for your Java problems. Find more regarding tutoring services at http://www.cdm.depaul.edu/Current%20Students/Pages/TutoringProgram.aspx

Grades:
- Homework: Three assignments each worth 10 points. (30 points)
- Attendance: (5 points)
  - Attendance is required for this course. Attending lectures and lab activities do help you to better understand the home works.
  - Attend class and participate in the lab activities. Sign the attendance sheet which will be made available starting in Week 2. If you skip the occasional lecture make sure you complete the lab activity/quiz for that week.
- Exams:
  - Midterm (15 points)
  - Final (20 points)
- Project:
  - GUI and UML Design (5 points)
  - Presentation (5 points)
  - Final Project Submission (20 points)

There will be **no extra credit**, so please make sure to do all assignments and keep up with the class. For the most part, people who fail this class are people who don't do the assignments and/or don't attend/view lectures.

Schedule:
You can see a draft for schedule below. The lecture topics from weeks 4 onwards are still flexible. The schedule will be updated on D2L.

SE-350 (Session 401)

NOTE: Specific topics from Week 4 on may be rearranged.

			Thursday		Tuesday	Reading	Assignments
1	Sep	7th	Course Introduction *Java Review* : Basic UML Inheritence/Ovrride Lecture1a.pdf	12th	*Design Pattern:* Strategy *Java Review:* Java Loops & Iterators Lecture1b.pdf Activity Sheet #1	Horstmann: Chapter 1 Headfirst: Chapter 1	
2		14th	Lab # 1: Strategy Pattern (Lab1.pdf)- WorldPopulation Homework 1: "Battleships" assigned	19th	*Design Pattern:* Observer *Java Review:* Date Class Lecture 2b.pdf Activity Sheet # 2	Horstmann: Chapter 3 Headfirst: Chapter 2	
3		21st	Introduction to JavaFX Lecture 3a.pdf	26th	Lab #2: Java BASIC GUIs Homework 2: "Christopher Columbus" assigned	Horstmann: Chapter 4 Horstmann: Chapter 9 (no synchronization)	Monday 25th @Midnight (Homework 1 due) 10%
4	Oct	28th	Programming by Contract Lecture 4a.pdf Hands-on Design Activity Activity Sheet #3	3rd	*Design Pattern:* Composite *Case Study* : Fragile Base-Class Lecture 4b.pdf	Headfirst: Chapter 9	
5		5th	SOLID Principles Lecture 4a.pdf Homework 3: Composite assigned (Read Horstmann Chapter 3)	10th	Lab # 3: Handling Events Mouse Events (Read Horstmann Chapter 2)		Wednsday 4th @Midnight (Homework 2 due) 10%
6		12th	Midterm Exam Participation Mandatory	17th	*Design Pattern:* Adaptive Patterns (Decorator, Façade, Adapter) I/O Streams (Serialization/Deserializ ation)	Headfirst: Chapter 3 (Decorator)	Midterm on 12th 15%
7		19th	*Design Pattern:* Factory Method and Abstract Factory Final Project Assigned	24th	Lab #4: Practice with Factory Mehod & other patterns we've learned, MVC	Headfirst: Chapter 4 (Factory patterns) Horstmann: Chapter 5	Sunday 22nd @Midnight (Homework 3 due) 10%
8		26th	*Design Pattern:* Singleton Anonymous Classes	31st	*Design Pattern:* Command	HeadFirst: Chapter 5 (Singleton), Chapter 6 (Command)	Sunday 29th Project GUI & UML Design 5%
9	Nov	2nd	*Design Pattern:* Visitor	7th	*Design Pattern:* State Software Development Processes	HeadFirst: Chapter 9 (Collections) Horstmann: Chapter 2 (SDP)	
10		9th	*Design Pattern:* Template General review of patterns	14th	Game Jam Participation Mandatory	HeadFirst: Chapter 8 (Template)	Project presentation 5%
		16th	Final Exam 11:30-1:45				Sunday 19th @Midnight (Final Project due) 20% Final Exam: 20%

* In addition to the assigned readings, some examples in the lecture slides will be taken from Horstmann and