CompSci 251: Intermediate Computer Programming

Spring 2017

Instructor	-	Ahmed Shatnawi
Email	-	`shatnaw3@uwm.edu`
Class Hours	-	EMS E180 MW 10-10:50am
Office Hours	-	EMS E280 RF 11-12pm; anytime electronically; by appointment; after class

Lab Instructor	Email	Labs	Office	Office Hours
Reihaneh Rostami	`rostami@uwm.edu`	803, 805, 806	EMS E280	M: 1:30 - 3:00, T: 12:00 - 1:30
Nathan Roehl	`nsroehl@uwm.edu`	801, 807	EMS E280	T:2:00 - 4:00
Zachary Benzaid	`zbenzaid@uwm.edu`	802	EMS E280	T:1:00 - 2:00
Julian Ziman	`jfziman@uwm.edu`	804	EMS E280	W:12:00 - 1:00
Taiyu Zhang	`taiyu@uwm.edu`	808	EMS E280	R 2:00 - 3:00

1 Email

Please note that assignment questions should be sent to **compsci251-list@uwm.edu**. The turnaround time for responses to questions will be much quicker using this email. Students should also avoid emailing their assignment questions for individual teaching staff.

2 Overview

Problem solving with structured programming techniques and objects using an object-oriented programming language, including control structures, functions, arrays, classes, standard data structures, graphical user interfaces, exceptions, and files.

This class will provide the theory and practice of software security, focusing in particular on some common software security risks, including buffer overflows, race conditions and random number generation, and on the identification of potential threats and vulnerabilities early in the design cycle. The emphasis is on methodologies and tools for identifying and eliminating security vulnerabilities, techniques to prove the absence of vulnerabilities, and ways to avoid security holes in new software and on essential guidelines for building secure software: how to design software with security in mind from the ground up and to integrate analysis and risk management throughout the software life cycle.

3 Course Goals

By the end of this semester, you will have the ability to implement object oriented applications of moderate complexity using Java language. You will be able to read, modify, and extend existing Java programs. You will be able to understand simple concepts and techniques for testing software and assuring its quality.

4 Required Text

Dean & Dean, *Introduction to Programming with Java: A Problem Solving Approach*, Second Edition, McGraw Hill (Higher Education), 2008. ISBN-13: 978-0073376066.

5 Grading

Course letter grades will be assigned using the following scale, unless we decide that this scale is too severe (in which case the scale will be adjusted downward).

Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
Minimum Grade	93	90	87	83	80	77	73	70	67	63	60	0

Course percentage grades are broken down into the following categories.

10% Labs

There will be a lab exercise during each lab meeting. The lab exercises are graded on a scale between[0, 2], where 1 is given for attendance and 2 is given for completion. A good attempt should count as a passing grade. The lowest lab score is dropped. Missed labs may be graded *within the same week* during your lab instructor's office hours (or convenience). To ensure your understanding, make-up lab evaluation may take the form of a short oral evaluation.

10% Quizzes

There will be a quiz during each lab meeting. Quiz content will focus on material presented in lecture the week prior. The lowest quiz score is dropped. Missed quizzes may be made up *within the same week* during your lab instructor's office hours (or convenience).

35% Assignments

There will be ten or more programming assignments.Programs must be submitted to the D2L dropbox and are be graded on correctness, clarity, and style. Assignments are assigned and due at the **beginning** of lecture on Monday. No assignment grades are dropped, but students wishing to replace their lowest assignment grade may attempt an optional assignment available at the end of the semester.

45% Exams

You will have one midterm and one cumulative final (with a strong emphasis on the materials covered after the midterm). Exams will take place during regular lecture period. Exam week labs will be replaced by an ad-hoc review given by the lab instructors (you should come prepared with questions, or at the very least a vague sense of wonder).

20%	**3/8 (10-10:50am)**	Midterm
25%	**5/19 (10-12am)**	Final

6 Late Policy

Late homework will not be accepted.

Labs and quizzes missed due to unforeseen and extreme circumstances may be made up *within the same week* during your lab instructor's office hours. *Keep in mind that one quiz grade and one lab grade may be dropped.*

7 Academic Misconduct

The university has a responsibility to promote academic honesty and integrity and to develop procedures to deal effectively with instances of academic dishonesty. Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect of others' academic

endeavors. A more detailed description of Student Academic Disciplinary Procedures may be found at `http://www4.uwm.edu/acad_aff/policy/academicmisconduct.cfm`.

8   Participation by Students with Disabilities

If, due to a disability, you need special accommodations in order to meet any of the requirements of this course, you should contact your instructor as soon as possible.

9   Religious Observances

Students will be allowed to complete examinations or other requirements that are missed because of a religious observance, provided that the student notifies the instructor of the religious observance during the first three weeks of the semester. For complete details of UWM's policy on religious observances, see `https://www4.uwm.edu/secu/docs/other/S1.5.htm`.

10   Cheating & Collaboration

All graded assignments must be your own work (your own words), but you may work with other people as long as you list their names prominently on the first page of the assignment, and/or in a comment at the top of the assignment, for example:

```
// Wendy Lee, Homework #6, CS 251
// I discussed this assignment with Sam White,
// and Pat Long. We looked at each other's design notes,
// but did not exchange the copies.
```

For this course, verbal communication and collaboration using non-code text or hand-written code is permitted, as long as it is properly documented. Documentation must also be made for help from anyone not in the course, such as a tutor, friend, or relative, and for information off the Web.

Automatic copying of assignments (e.g. email, messaging, flash drive copies, printed hard copies, etc) is **strictly** forbidden. At the very least, you must write every word in your assignments. If you are unsure whether something is permitted, please check with an instructor or TA. If you turn in a program which is an electronic copy (or a minor variation of a copy) of other people's work, then the source and people who give credit to the source will receive zero for the assignment, while those who do not give credit may be given an 'F' grade for the course. Do not send your programs by email to other people!

Whether or not you have permission of the other person, submitting someone else's work as your own is plagiarism, a serious instance of academic misconduct. Everyone is responsible for learning the material themselves. Some of the assignments may be graded in person, especially in cases where the individual contribution to the assignment is not clear. If you are graded in person, you will be expected to demonstrate that you have mastered techniques used in the material you submitted.

11   In-Class Communication

Phone calls, text messages, instant messages, email, and web surfing are highly disruptive to other students and hence **not allowed** during class time. Technology devices may only be used for the class purposes (e.g. following slides) Violators will be asked to leave the room. If you anticipate a call that you simply have to take (yes, that happens), please sit near the door, put your phone on vibrate, and leave quietly at the appropriate time. If you are disrupted by another student's violation of this policy, please bring the matter to my attention.

12 Outline

This course outline is a "living document". It can be changed in response to events in the course. You will be notified if major changes are made.

M	W	Topics	Reading
1/23	1/25	Course Intro and Review	Ch. 1 - 4
1/30	2/01	Review	Ch. 5
2/06	2/08	Object-Oriented Programming	Ch. 6
2/13	2/15	Object-Oriented Programming	Ch. 7
2/20	2/22	Inheritance and Polymorphism	Ch. 13, 14
2/27	3/01	Aggregation and Composition	Ch. 13, 14
3/06	3/08	Review, Midterm Exam	Ch. 14
3/13	3/15	Software Engineering and Arrays	Ch. 8, 9
3/20	3/22	Spring Break	
3/27	3/29	Collections - Generics, Lists	Ch. 10
4/03	4/05	Collections - Sets, Maps	Ch. 10
4/10	4/12	Exception Handling	Ch. 15
4/17	4/19	File Input/Output	Ch. 16
4/24	4/26	GUI Programming Basics and Component Layout	Ch. 17, 18
5/01	5/03	GUI -Action Listeners, Timers	Ch. 17,
5/08	5/10	TBD and Final Exam Review	Handout