CMSC 220: Advanced Java Programming (3 credits) Fall 2012

http://marmorstein.org/~robert/Fall2012/cs220.html

Instructor: Robert Marmorstein (marmorsteinrm@longwood.edu) 434-395-2185
Office Hours: 2:00-3:00PM MTWRF (Ruffner 329) or by appointment
Lecture: 12:30-1:45pm (TR) Ruffner 352

I am also available outside my usual office hours. To make an appointment with me, contact me by e-mail.

Course Description:

This class develops skills for programming using the Java Programming Language. This is an advanced programming course and it is assumed that the student has the required programming skills acquired from previous C and C++ programming classes.

Prerequisite: CMSC 160 or Permission of Instructor.

Course Objectives:

The student will learn to

1. Use object-oriented programming in Java to create applications and applets.
2. Design apps for mobile phones and tablets.
3. Apply object-oriented design principles to other languages, such as C++.

Textbook:

There is no textbook for this class. However, you will be required to read and complete several trails of the “Oracle Java Tutorial” at *http://docs.oracle.com/javase/tutorial/index.html*.

You may find a good Java reference handy. Some good reference books are “Learning Java” by Patrick Niemeyer and “Java in a Nutshell” by David Flanagan.

Course Requirements:

This class will have a strong programming component. The projects will comprise 60% of your grade. Homework and quizzes will comprise another 20%. The midterm and final exams will be worth 10% each.

Grading Policy:

Late work will not be accepted unless you have a serious medical or family condition which prevents you from completing the assignment on time. You do not need a doctor's note, but you must send an e-mail to my Longwood account at least twelve hours before the assignment is due explaining the circumstances and asking to make arrangements for the work to be completed.

Slip Days:

You may extend the due date of one or more *programming labs* using slip days. You will be allocated a fixed number of slip days at the start of the semester. You may use all of your slip days on one assignment or you may use them on multiple assignments. Keep in mind, however, that once you use them up, they are gone for good.

Slip days are calculated from the minute the assignment is due until you turn it in. The number of slip days used is rounded *up* to the nearest integer value. That means that if you turn an assignment in 24 hours and 1 minute late, you will use up *two* slip days. The slip day clock runs over weekends and holidays, so if a lab is due on Friday and you turn it in on Monday, you will have used three slip days, not just one. Slip days cannot be shared, divided, traded, bought, or sold.

Grading Scale:

		100-91:	A	90:	A-
89:	B+	88-81:	B	80:	B
79:	C+	78-71:	C	70:	C-
69:	D+	68-64:	D		
63 or lower: F		(There is no grade of D- in this course.)			

Attendance:

I expect you to attend class unless you are sick or engaged in a school-sponsored sport or extracurricular activity. I will rely on your honor for enforcement of the attendance policy. As with the policy on missed work, you do not need a doctor's note, but you must send me an e-mail within 12 hours of the missed class to explain why you missed and arrange to complete missed work.

In accordance with Longwood policy, missing more than 10% of scheduled class time (5 class sessions) to unexcused absences may result in loss of one letter grade. Missing 25% of class or more (14 sessions), whether excused or not, may, at my discretion, result in an automatic failing grade. If you fail to complete an assignment due to an unexcused absence, you may, at my discretion, receive a 0% on the assignment.

Food and Drink:

Please do not eat in class (it distracts me and the other students). You may bring non-alcoholic beverages to class. Violations of this policy will be considered an unexcused absence.

I occasionally grant exceptions to this rule for students who must otherwise forgo lunch or have medical needs that require them to eat in class. If you feel that you need such an exception, you must make arrangements with me IN ADVANCE (i.e. before bringing food to class).

Cell Phones and Laptops:

Cell phones, music players, and laptops are to be turned off and put away during class, except for use during the lab sessions. Violations of this policy will be considered an unexcused absence.

Honor Code:

All work in this class should be considered pledged work.

Exams and quizzes are to be completed entirely on your own. You may discuss labs, projects, and homework problems as long as the work you turn in is your own original work, typed (or handwritten) by you, with proper credit given to any sources or resources you used to complete the assignment. The purpose of these projects and assignments is for you to get first-hand knowledge of the programming libraries and

techniques of this class. Any sharing of knowledge or information that defeats that purpose is cheating.

In particular, you must adhere to the following rules:

1. You must turn in a copy of your own work which YOU have typed or hand-written.

You may discuss the homework problems in the abstract, but please do not compare answers until after the assignment has been collected. On the projects, you may only turn in code that you personally have typed (except for code snippets downloaded from the course web page or otherwise distributed by the instructor).

2. You may NOT download code from the Internet (except for the course web page).

There are several web sites that have solutions to some of the projects. You may not use these sites in any way. However, there are other sites that you may find useful (man pages, articles in journals, Unix tutorials). You may use these web sites as long as you give proper credit, re-type any code you find (subject to the three line limit as described below), and do not download or copy/paste anything. You may use any format you prefer to cite a source as long as you provide sufficient information for me to find that resource and double check your work.

3. You may not share code electronically with anyone else.

This includes copying files using flash drives, cell phones, e-mail, web sites, floppies, CDs, or any other electronic storage or communication device. It also includes printouts or hand-written copies of your code.

4. You may not copy large blocks of code from other students or the Internet.

You MAY discuss the general design of the project with other students, but you must limit these discussions to general design details. You may also help other students with debugging, but you may not copy large blocks of code. What constitutes a “large” block of code? In general, a one-line change is acceptable, but a block of code that is more than three lines is too large.

5. You are responsible for protecting your data from copying.

You should probably set the permissions on your home directory to 711 or 700 using the “chmod” command. (See “man chmod” for details)

*Infractions of these policies will be dealt with harshly under the Longwood Honor Code. Any student convicted of an honor offense involving this class will automatically receive a final course grade of **F** in addition to any penalties imposed by the Honor Board. You should consider all work in this class to be pledged work, whether or not the pledge itself appears on the assignment.*

Tentative Course Schedule:

Please check the course web site regularly for updated versions.

Week1 (Aug. 21-23)	Introduction, Differences from C and C++, Expressions, Operators, Console I/O, and Style
Aug. 27	**Last Day to Drop (by 5pm)**
	Read "Getting Started" trail. *Read "Deployment" from "Learning the Java Language" trail.*
Week 2 (Aug. 28-30)	Control Structures and Debugging *Read "Language Basics" from* *"Learning the Java Language" trail.*
Week 3 (Sep. 6-8)	Classes, Encapsulation, Overloading, and Constructors *Read "Object-Oriented Programming Concepts" and* *"Classes and Objects" from* *"Learning the Java Language" trail.*
Week 4 (Sep. 13-15)	Static Methods, Reference Parameters, Arrays Packages, and Documentation R*ead "Packages" from "Learning the Java Language"* *trail.*
Week 5 (Sep. 20-22)	Inheritance and Abstraction *Read "Interfaces and Inheritance" and* *"Numbers and Strings" from "Learning the Java Language"* *trail.*
Week 6 (Sep. 27-29)	Introduction to Swing *Read "Getting Started with Swing" from* *"Creating a GUI with Swing" trail.*
Week 7 (Oct. 2-4)	Exceptions *Read "Exceptions" from "Essential Classes" trail.*
Week 8 (Oct. 9-11)	Files and Advanced I/O *Read "Basic I/O" from "Essential Classes" trail.*
Oct. 9	**Deadline to Withdraw without an F**
Oct. 15-16	**Fall Break**
Week 9 (Oct. 18)	Catchup and Review

Week 10 (Oct. 22-26)	Threads and Concurrency *Read "Concurrency" from the "Essential Classes" trail.*
Week 11 (Oct. 29-Nov. 2)	App Design: Activities and General Principles *Read "Building Your First App".*
Week 12 (Nov. 5-9)	User Interfaces: Design and API *Read "UI Overview", "Layouts", "Input Controls", "Input Events", and "Menus" from "User Interface"*
Week 13 (Nov. 12-16)	User Interfaces: Advanced API *Read "Dialogs", "Action Bar", "Settings", "Notifications", and "Drag and Drop" from "User Interface"*
Week 14 (Nov. 19)	Catchup and Review
Nov. 21-23	**Thanksgiving Break**
Week 15 (Nov. 26-30)	Catchup and Review
Dec. 7	**Final Exam (Friday, 8:00-10:30am)**