CPSC365A Software Engineering

Spring 2019

TTh: 2:50-4:20pm in Trexler 363

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Trexler 365A

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Office Hours: W 9:30 -- 10:30am; and by appointment.

Syllabus

Course Synopsis

In this course we will learn the principles of software engineering, software process models, requirements engineering, designing methodology and metrics, and testing and quality assurance. We will then apply these principles to the design and implementation of a large software project.

Required Texts and References

1. *Essentials of Software Engineering*, by Frank Tsui and Orlando Karam. Jones and Bartlett, 2011.
2. *Android Developers Guide*.
3. *The Busy Coders Guide to Android Development*, by Mark Murphy, 2012. **Prerequisites**

CPSC 250. Familiarity with C++ and Unix/Linux is assumed.

Intended Learning Outcomes

At the end of this course successful students will be able to:

1. Design and implement large software projects using a suitable software process model.
2. Analyze the complexity of a software design using various metrics
3. Create appropriate and adequate test cases for a software implementation.
4. Use and understand the Android Studio Integrated Design Environment(IDE).
5. Implement a software system using the Java Programming language for the Android operating system.

Mechanics

The course will meet in class for 3 hours during the week. The concepts studied in class will be complemented by several programming and homework assignments. Students will spend approximately the latter 2/3 of the semester working, in groups, on designing and implementing a large software project. There will be two tests in class (on **Thursday, February 14, and Thursday, March 28**) during the semester. The software project and its presentation will take the place of a final exam.

Make-up tests will be available *by pre-arrangement only* in case of scheduling conflicts. After the test, makeups will be available only in case of documented medical emergencies.

Besides the exams, there will be pop quizzes in class, regular homework assignments, programming projects, and a co-curricular requirement. No make-ups will be given for pop quizzes.

This course expects you to spend *at least* 12 hours of work each week inside and outside of class.

Co-curricular Requirement: The Mathematics, Computer Science and Physics department offers a series of discussions that appeal to a broad range of interests related to these fields of study. These co-curricular sessions will engage the community to think about ongoing research, novel applications and other issues that face these disciplines. Each student is required to attend at least *three* of these sessions, and turn in a short paper describing the contents of the session, and his/her *critical reflections* about the topic and content. These papers are due in class within a week of the session. A paper submitted beyond a week from the event being discussed in the paper will not be accepted.

Grading

The final grade will be computed based on the grades in the quizzes, tests, homeworks and the programming project according to the following weights.

Component	Weight	
Co-curricular	4%	
Home works and Quizzes	16%	
Tests (2)	30%	(15% each)
Project	50%	

The final course grade will be calculated as follows:

< 60	60-62	63-65	66-69	70-72	73-75	76-79	80-82	83-85	86-89	90-92	> 92
F	D-	D	D+	C-	C	C+	B-	B	B+	A-	A

Class Attendance and Policies

Regular attendance in class is highly recommended. Regardless of attendance, students are responsible for all material covered or assigned in class. Students are expected to take hand-written notes in class; some of the quizzes and tests may be open hand-written notes.

Cell phones should be kept in your backpacks or pockets (essentially, out of sight), and turned to the silent mode throughout the duration of the class and lab periods. Please do not remove your cell phones until you are outside the classroom/lab. Similarly, during office consultations or consultations in the lab (even when it is not during regular class or lab time), your cell phones should be out of sight and in the silent mode.

If you use an electronic device such as a tablet or a laptop for note-taking or to read the textbook, the content that is open on the screen should be strictly restricted to documents and pages of relevance to the class. For example, you should not have any social media websites open in your browser window, even if it is in a tab that is not currently in focus.

Academic Integrity

Students are expected to adhere to the Academic Integrity policies of Roanoke College. All work submitted for a grade is to be strictly the work of the student unless otherwise specified by the instructor. The policies as outlined in the Academic Integrity handbook will be enforced in the course.

Graded programs are subject to the Roanoke College Academic Integrity policies. Copying a program or a portion of a program (even a single line) or reading another person's program to obtain ideas for solving a problem is plagiarism. Other examples of integrity violation include writing code for some else, using code written by someone else, telling someone else how to solve a problem or having someone tell you how to solve a problem (and using their method). These cases apply to any work that is handed in for a grade under the instructor's assumption that the work is your own. Unless specified otherwise by the instructor, discussion among students should be limited to general a solution to the assigned problem.