

Syllabus

Android Application Development - COMP 475
2:30 – 3:45 TR Science 207
Fall 2011

Instructors: Dr. Frank McCown
Contact: Office: 501-279-4826, HU Box 10764, fmccown@harding.edu
Home Page: <http://www.harding.edu/fmccown/classes/comp475-f11/> (Syllabus, useful links)
Office Hours: Science 208: 11 –12 & 3 – 5 MWF, 4 – 5 TR, or by appointment

Course Description

Mobile devices are becoming ubiquitous for a number of reasons: exponential growth in computing power and storage, increased Internet accessibility, growth of cloud computing services, novel advances in human-computer interfaces, and significant drops in hardware prices. Developers are now devoting significant effort to build applications for these smartphone and tablet devices. In this course, we will learn how to develop applications for one of the most popular mobile platforms: Google Android. Students will work in teams to develop applications which will hopefully be placed in the Android Market. Prerequisite: COMP 245 and 345.

This course is largely modeled on David Janzen's Android Course¹ at Cal Poly - San Luis Obispo.

Required text: *Android Wireless Application Development 2nd Edition* by Conder and Darcey (2010)

Grades

Final grades will be computed as follows:

Quizzes	10%
Tutorials	25%
Individual Assignments	22%
Course Project	33%
Final Exam	10%

Standard letter grades: A = 90-100%, B = 80-89% C = 70-79%, D = 60-69%, F = 0-59%

Extra credit will occasionally be given on tutorial assignments. The McChallenge is also available.

Late work: A maximum of 10% will be taken off *each day* (not each class period) a program or assignment is late, up to 50%. Every day is counted, including weekends. Nothing late more than 1 week will be accepted.

Quizzes

Quizzes over the assigned reading material must be completed on Moodle *before* class. You may use your books to complete the quizzes, but you may not talk to others about them—they are individual assignments. Quizzes may not be taken late, so you must be diligent about completing them when they are due.

Tutorials

A number of tutorials will be assigned weekly. The tutorials will usually provide you an opportunity to learn more thoroughly the material presented in class that week. Tutorials need to be completed individually or in pairs (two people only). Pair programming has been shown to have a number of benefits including increased personal satisfaction and fewer errors². If you work in pairs, both of you must work together on a *single* computer, and both of you must write *approximately half* of the code. **No code can be written without the other partner present and watching.** Both of you should understand completely what is being written since you will have to complete your

¹ <https://sites.google.com/site/androidcoursearchive/home>

² See *All I Really Need to Know about Pair Programming I Learned in Kindergarten* (2000) for more information on effectively using pair programming at <http://citeseer.ist.psu.edu/williams00all.html>

exams individually. When you submit a program that has been written in pairs, you must include both your names in the source code. Only one person should submit the solution to Easel.

Tutorials will be self-graded, meaning each person will assign a grade for their completed tutorial that equates to how well the tutorial was completed. Use the following scores when evaluating your tutorial:

- 10 = Completed in its entirety with no bugs
- 9 = Completed in its entirety with a little bug
- 8 – 6 = More than half way finished
- 5 = Halfway finished
- 4 – 1 = Less than halfway finished
- 0 = Didn't work on the tutorial at all

+2 for completing the Extra Challenge sections.

I will send out an email after the tutorials are submitted, and you should respond to the email with your assessment. Failure to respond to the email will result in a 0 for the assignment. I will randomly choose tutorials to grade myself to ensure that grades are being properly assessed. If my evaluation of the tutorial is more than a point different than your evaluation, you will receive a zero on the assignment. This is to encourage both honesty and thoroughness when doing self-evaluations.

Individual Assignments

Each of you will complete a number of assignments that relate to the Course Project:

- App Analysis 5%
- App Proposals 6%
- Alpha Release Evaluation 5%
- Beta Release Evaluation 3%
- Self/Peer Assessment 3%
- Total 22%**

These assignments are to be completed *individually*, not in teams. More detail about each assignment will be given later.

Course Project

The goal of this course is for each student team to create an app that will ultimately be placed on the Android Market. This major project will occupy a significant amount of your time this semester. Teams will consist of 2-3 CS members who are responsible for the overall implementation of the project and all milestones, and 1-2 Graphic Design majors from Dr. Schoen's senior graphic design course who are responsible for producing the app icon, splash page, and other graphics needed by the app. The app can be a game, a utility, educational, etc. Your goal is to choose a non-trivial project that leads to a sufficiently useful or entertaining app that can be completed in a semester's time.

A number of project milestones will be assigned throughout the semester:

- Horizontal Prototypes 5%
- Vertical Prototype 5%
- Pre-Alpha Version 2%
- Alpha Release 5%
- Alpha Release Eval Eval 3%
- Beta Release 13%
- Total 33%**

It is my hope that you will use the feedback that you get on your Beta Release Evaluations to improve your beta and release your improved app on the Android Market. This project could be a significant bullet point on your resume.

Final Exam

There will be a single exam, the final exam, which will cover all the material you have learned this semester.

Expectations

1. It is important that you **check your e-mail regularly (everyday)** because I often give timely announcements, help on assignments, and share interesting links that relate to the course material through email. It's the only way I can communicate with you all outside of the classroom.
2. I expect every one of you to hold to the **highest standard** of personal conduct and **integrity**. Cheating in all its forms is inconsistent with Christian faith and practice and will result in sanctions up to and including dismissal from the class with a failing grade. That doesn't mean you can't help others with their programs and homework; everyone will at some time struggle and need assistance from fellow students. But simply giving someone your source code to copy or letting someone copy your answers is dishonest and isn't going to help either of you. Come by during office hours (or we'll arrange a time) for assistance on programs.
3. I expect you to adhere to the **dress code** as spelled out in the Student Handbook. This includes (men) removing caps while in class.
4. You may bring laptops to take notes in class, but you are not allowed to do non-class activities like Facebook, email, surfing the Web, games, etc. If you violate this rule, you will no longer have the privilege of bringing your laptop to class.
5. Silence your cell phones.

If you ever need assistance in this class or anything else, please don't hesitate to come by my office or give me a call.

Assessment

Harding University, since its charter in 1924, has been strongly committed to providing the best resources and environment for the teaching-learning process. The board, administration, faculty, and staff are wholeheartedly committed to full compliance with all criteria of the Higher Learning Commission of the North Central Association of Colleges and Schools. The university values continuous, rigorous assessment at every level for its potential to improve student learning and achievement and for its centrality in fulfilling the stated mission of Harding. Thus, a comprehensive assessment program has been developed that includes both the Academic units and the Administrative and Educational Support (AES) units. Specifically, all academic units will be assessed in reference to the following Expanded Statement of Institutional Purpose: **The University provides programs that enable students to acquire essential knowledge, skills, and dispositions in their academic disciplines for successful careers, advanced studies, and servant leadership.**

Assessment of the knowledge, skills, and dispositions of each student for the purpose of assigning a letter grade at the completion of this course will be based on the projects, homework assignments, and exams that were described previously in this syllabus. Near the completion of your major in the department of Computer Science, you will be assessed by a comprehensive examination covering core courses in your major (not including this course). This examination will influence your final grade in the senior capstone course.

Students with Disabilities

It is the policy for Harding University to accommodate students with disabilities, pursuant to federal and state law. Therefore, any student with a *documented disability* condition (e.g. physical, learning, psychological, vision, hearing, etc.) who needs to arrange reasonable accommodations, must contact the instructor and the Disabilities Office at the *beginning* of each semester. (If the diagnosis of the disability occurs during the academic year, the student must self-identify with the Disabilities Director *as soon as possible* in order to get academic accommodations in place for the remainder of the semester.) The Disabilities Office is located in Room 102 of the Lee Academic Center, telephone, (501) 279-4019.

Schedule

The following schedule is subject to change but gives you an idea of how the class will progress. Project milestones are in **bold**.

Week 1 (Aug 22)	Introduction to mobile computing Android SDK and Eclipse Tutorial 1 App Analysis	Week 9	GPS and Google Maps API Tutorial 8
Week 2	App details and lifecycle Tutorial 2 App Proposals	Week 10	Notifications Tutorial 9 Alpha Release
Week 3	Menus and dialog boxes Tutorial 3 Horizontal Prototypes	Week 11	Android services Tutorial 10 Alpha Release Evaluation
Week 4 (Sep 12)	Graphics and sound Tutorial 4 Vertical Prototype	Week 12 (Nov 7)	App widgets Tutorial 11 Alpha Release Eval Evaluation
Week 5	Saving state and internationalization Tutorial 5	Week 13	Advanced user input Tutorial 12
Week 6	Settings and data storage Tutorial 6 Code Review	Thanksgiving Break	
Week 7	SQLite databases and custom views Pre-Alpha Version	Week 14	Testing apps Beta Release
Week 8 (Oct 10)	HTTP and web services Tutorial 7	Week 15	Beta Release Evaluation Self/Peer Assessment
		Week 16 (Dec 12)	Final Exam

"Whatever you do... do all to the glory of God." - 1 Corinthians 10:31