CSCI 412 - Mobile Device Programming
Spring 2019

Time:  MTWF 12 Noon
Place:  CF 314
Instructor: Phil Nelson
Office/Phone:  CF 471, 650-3035
Office Hours:  2:00pm MWF, others by appointment

E-mail: My e-mail address is phil.nelson@wwu.edu. If you send me e-mail, please use plain text (no HTML) messages and include “CSCI 412” in the subject of your e-mail to help your e-mail not be classified as spam.

Web Access: I have information for this class on the web. As they are assigned, I will put a copy of each assignment on the web. See the page http://facultyweb.cs.wwu.edu/~phil/classes/s19/412. Other information will be provided via the web. If you believe something is missing from the site, please e-mail me requesting the information be posted.


Some available at https://proquestcombo.safaribooksonline.com for no cost to WWU students.

References: http://developer.android.com and many other web resources.

Description: This class is intended to teach the student about mobile device programming. We will be considering the topic in general. Programming will be on the android platform.

Course Outcomes: On completion of this course, students will demonstrate

- A solid understanding of the design and development of applications for the mobile environment.
- A solid understanding of the the Android platform and the tools available for Android development.
- A basic understanding of the UI design and implementation on mobile devices.
- The ability to write an Android application.
- A basic understanding of the mobile application distribution systems.

Graded Work: The graded work will be 2 tests, programming assignments and a term project.

Tests: The tests are scheduled for Friday, May 10, 2019 and regular final time of Tuesday, June 11, 8 am. Each test is worth 20% of your final grade.

Minimum Points on Tests: To pass this class, you must earn at least 50% of all test points.

Assignments: Programming assignments will be worth 30% of your grade and will be programming in the Android environment. Assignments will be worth a different number of points and will contribute to “total” for the assignments. Expect 4 or 5 assignments during the quarter.

Term Project: You will also be working on a term project during the quarter. More details of the term project will be distributed in a different document. The term project is worth 30% of your grade.
Hardware: If you need an Android tablet on which to test your assignments and term project, the department will provide you with Lenovo Tab 4, 8 inch tablet. These will be checked out via an on-line e-form. More details to be given in class. To receive a grade in the class, you must return your hardware to the department by 5 PM Wednesday, June 12, 2019. If it is lost or stolen, you will be asked to pay for a replacement for the department. A police report will be required for stolen equipment. Your best option is to get some kind of insurance, like renter’s insurance.

Coding Standards: All programming assignments are required to follow the coding standards as listed on the web site at the URL http://merlin.cs.wwu.edu/faculty/phil/classes/coding.pdf. Not following these standards may cause point loss.

Final Assignment: The term project and possibly the last assignment will be due at the last class period of dead week, Friday, June 7.

Late Work: Work is due at the beginning of class on the day due. Work will be accepted up to TWO meetings of the class late and will be worth 75% of the original value. (For example, if the assignment is due on Wednesday, the second meeting of the class would be the following Monday.) Work later than two class periods will be worth nothing. A late final assignment is worth 75% of the original up until the start of the final test. It is possible that elements of the term project may not be turned in late. These will be clearly marked in the term project deadlines.

Grading: Grading is done by a percentage of the top score. The following is an example grade scale.

A: 100% – 90%
B: 89% – 80%
C: 79% – 65%
D: 64% – 50%

Collaboration: Each student MUST do their own programming on the assignments. Original work is required. When working on the programming assignments, you should not see the source code of any other student. You may discuss problems using diagrams on scratch paper, but you should not see source code. Even helping a fellow student
debug their program so that source code is seen should be avoided. Students having problems should e-mail me or visit me in my office.

**Term project:** Term projects will consist teams of two or three people. Term projects will require collaboration on those projects.

**Cheating:** Is (obviously) not allowed. If you do cheat and are caught you will receive an F as your grade for the class. This includes *ALL* students knowingly involved in any cheating event. Not properly protecting your source code may be considered knowingly involved. If you give your password to your friend or allow access to your files or a machine on which your sources are stored, this can be considered knowingly involved. I use mechanical means to compare student programs, not only all students this quarter, but from students who took this class in the past. These comparisons are used to raise the possibility of cheating, but all decisions about cheating will be made by me after inspecting the programs of all students involved.

**Topic Outline:** This does not give the exact order of the topics.

- Summary of information not covered, SQL, Networking, XML, Java
- Introduction to Mobile Environments
- Quick comparison of different Mobile Operating Systems
- Introduction to Android
- Setting up a development environment
- Fundamental components, views, activities, intents, content providers
- Building an android application
- Android Resources
- Content Providers
- Intents
- Basic UI design and controls
- Basic UI views and layout managers
- Android Menus
- Dialogs
- Preferences and saving state
- Android fragments
• Security and permissions
• Services, http and others
• Handlers
• Packages and the Android market
• As time permits:
  – Concurrency and Long running services
  – 2D graphics
  – Maps and location based services
  – Media frameworks, audio and video
  – Android search, Text to speech
  – To be determined