

## Syllabus

COMP 4750: Android Application Development  
10:0 – 11:15 TR Science 207  
Spring 2020

**Instructors:** Dr. Frank McCown  
**Contact:** Office: 501-279-4826, HU Box 10764, fmccown@harding.edu  
**Home Page:** <http://www.harding.edu/fmccown/classes/comp4750-s20/>  
**Office Hours:** Science 208: 2-3 pm and 4-5 pm daily or by appointment

### Course Description

In this course you will learn how to develop native applications for Android, the most popular mobile platform. Students are expected to have some experience programming with Java. Prerequisites: COMP 2450 and 3450.

Required online text: *Mobile App Development* by McCown from zyBooks.

To get your zyBook:

1. Sign up at [zybooks.com](http://zybooks.com)
2. Enter zyBook code: **HARDINGCOMP4750McCownSpring2020**
3. Click *Subscribe*

### Student Learning Outcomes

At the end of this course, the student will be able to:

1. Identify important differences between developing mobile apps for iOS and Android.
2. Identify important differences between native, web, and hybrid apps.
3. Design and develop Android applications that meet specific requirements.
4. Explain how event driven applications use threading to perform time-consuming operations.

### Exams

Two regular exams will be given in class as well as a final comprehensive exam covering the entire course and, in more detail, the information presented since the 2nd exam. If you are unable to take an exam as scheduled due to a serious illness or some other emergency, it is **your responsibility** to call me and leave a message *before* the exam or as soon as you are physically able. If an official school function takes you out of class on an exam date, it is your responsibility to make arrangements *one week prior* to the exam as to when you will take the exam. Usually it will be given early, not late. Makeup exams for excused absences will be given, but a penalty of up to 75% will apply for unexcused absences, at the teacher's discretion. **Phones must be turned off and put away.**

### Projects

Three major programming projects will be completed using Android Studio. These projects will require you to integrate the information learned in class to produce non-trivial Android applications. You should expect to spend a significant amount of time on each project.

The first two projects will be completed in teams of two that will be assigned by the instructor. The final project will be completed by teams of your own choosing. Pair programming may be used but is not required. Teams will use git for version control and will make their code available in private repositories on GitHub.com.

## Reading & Homework Assignments

Reading and homework assignments will be assigned throughout the week. The reading assignments from the zyBook require you to complete all Participation Activities before class begins on the due date. Reading assignments may be completed on time to receive any credit.

Homework assignments may be completed individually or in pairs using pair programming. If pair programming is used, only one person needs to submit the pair's solution to Canvas. The person who submits the assignment should add a Canvas comment indicating their partner's name.

## Extra Credit

1. The McChallenge: **1%** will be added to your final grade for the completion of a program which will be made available to you later in the semester. The program will be due the Friday before final exams. You can skip the program and still get the 1% added to your final grade if you beat me in a game of basketball, tennis, racquetball, Halo, chess, Trivia Pursuit, or any other sport/game that I know how to play. If you lose, you still may complete the program to get your 1%. Only one challenge per semester, and all challenges must be made *before* the final week of class. Come by my office to schedule a time to play.
2. Giving Blood: Donating at the Red Cross blood drives will earn you **0.2%** added to your final grade each time you donate. Donate as many times as you'd like, and give me a signed note confirming your donation each time you donate.

## Grades

Final grades will be computed as follows:

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

Reading:	5%
Homework Assignments:	20%
Projects:	30%
Exams:	25%
Final Exam:	20%

**Late work:** A 10% penalty is assessed *each day* (not each class period) an assignment is late, up to 50%. Every day is counted, including weekends. Nothing more than one week late will be accepted. Some assignments cannot be turned in late because we'll go over the solution the next class period. Those with excused absences are still expected to turn in assignments as soon as you are physically capable of doing so.

Final grades are not rounded unless the student has given significant effort which is evidenced by regular attendance, completion of nearly all homework assignments, significant effort on projects, etc.

## Miscellaneous

1. To be successful in this course, be prepared to spend **at least two hours outside of class** for every hour in class reading, completing homework and projects, and preparing for exams. This works out to about 9 hours a week. If you do not have this much time to dedicate to the course, you should take it some other semester when you can make that commitment.
2. You must check Canvas **regularly** for announcements and class assignments. Canvas is the place to ask questions outside of class and give help to others on homework and projects. Class recordings are available in Canvas on Echo360.
3. You are expected 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. Homework and quizzes should be completed *individually* (not in teams or pairs), and it should be *your* work, not the work of someone else. One thing that you should *never do* is allow someone to see your source code as this often leads to cheating. Come by during office hours (or we'll arrange a time) for assistance on programs. Also see my [Plea for Integrity](#).

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

4. Please adhere to the **dress code** as spelled out in the Student Handbook.

5. Please be respectful to me and those around you by minimizing distractions. Silence your cell phones, and **put them away**. Use the lab computers for working on class-related work only. Be aware: the lab runs software that shows the instructor what is on your screen.
6. **No food** or drink is permitted in the lab. However, I will allow you to bring in a drink with a lid until we have a spill.

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

## **COVID-19**

This section was added to the syllabus when Harding made the decision to move all courses online to prevent the spread of COVID-19. None of us signed-up for this, but we must roll with the changes and do our best to finish the semester strong.

Please keep me informed of any difficulties you may be encountering. If you or a family member become ill, please let me know. If you have trouble accessing the internet, let me know. I'm here to help.

Course lectures will be posted to Echo360 every Tuesday and Thursday before 10am Central Time. We will occasionally meet on Zoom at 10am so we can check in and have class synchronously. The Zoom meeting will be recorded and posted to Echo360 shortly after each meeting.

You are expected to watch the course videos each Tues and Thurs and do any homework posted on Canvas. You will continue to read from your zyBook the sections assigned on Canvas before class time on Tues and Thurs. Exams will be taken on Canvas.

Some topics which I had planned to cover may be dropped, but we will cover all essentials. My goal is to run the course roughly the same as it was on campus. You will need to be very self-disciplined in this new format. I encourage you to set aside two hours each day Mon-Fri to watch videos, read, and do homework. Create a schedule and stick to it. Remove as many distractions as you can from your workspace. Seek help from when you need it.

I will continue to hold the same office hours. You can call me at my office, email me, or we can setup a Zoom meeting.

## **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. 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.

## **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 Room 205 of the Student Center, telephone, (501) 279-4019.

## **Schedule**

The following schedule is subject to change but gives you an idea of how the class will progress.

Week 1 Jan 13	Introduction to mobile app dev Android Studio	Week 6	Fragments	Week 11	Web APIs and Volley Running background tasks
Week 2	Resources, debugging, MVC Layouts	Week 7	RecyclerView	Week 12	Graphics and animation Project 3
Week 3	Widgets, styles and themes Project 1	Week 8	Touch and gestures Project 2	Week 13	Sound
Week 4	Activity lifecycle Restoring state, intents	<i>Spring Break</i>		Week 14	Motion sensors and camera
Week 5 Feb 10	Menus and dialogs <b>Exam 1</b>	Week 9	Shared preferences	Week 15	Project presentations
		Week 10	SQLite and Room library	Week 16	<b>Final Exam</b>
		Mar 23	<b>Exam 2</b>	May 4	