Computer Science 490
Mobile Computing
Spring 2017 9:30 – 10:50 TR
Stuart Hall 308

Instructor:	Dr. Stephen Hughes	Office Hours:
e-mail:	shughes@coe.edu	MWF 1:00 – 2:00
phone:	399-8231	Tues 11:00 – 12:00
		By Appointment or Open Door.
		315 Stuart Hall

COURSE DESCRIPTION

This course will explore design, development, testing, and deployment of applications that run on the Android platform. Topics include the design principles, application structure and styles, user interfaces and content storage and management. Students will also investigate several core APIs that are integral to today's mobile environment. These include: networking, telephony, sensors, Location-Based Services (LBS), graphics and multimedia.

LEARNING OUTCOMES

Upon completion of this course, students will be able to:

- Effectively use professional development tools associated with mobile computing.
- Employ major components of the Android API to develop professional grade mobile applications.
- Create stand-alone, networked and sensor-enhanced mobile applications.

This course will also cultivate professional programming practices beyond the direct course content, including:

- Design practices
- Prototype development
- Project management with emphasis on Agile techniques
- Source control
- Functional demonstrations and presenting code

CLASS ENVIRONMENT

This class will be taught in as an exploratory seminar. Conceptual material will be introduced through lectures, but a significant portion of class time will be devoted to working with the instructor and peers to co-develop and explore coding examples and other artifacts that can be shared with other members of the class. To thrive in this course, you must be willing to independently research, experiment, fail, recover, explore, tweak, discover and reflect.

This class is expected to consume at least 150 hours of student work over the course of the term. To meet this expectation, you will need to work outside of our scheduled meeting time.

You should plan to dedicate a *minimum* of 10 hours per week to this class.

STUDENT ASSESSMENT

20% **Milestones:** You will be required to schedule four one-on-one conversations with the course instructor to discuss your individual progress toward the course concepts. You should expect to review code that you have produced as well as discussing your overall growth as a mobile app developer.

40% **Basic Competencies:** Over the course of the semester you will have the opportunity to explore several skills shared by most Android developers. You will work independently to hone these skills and then demonstrate your competency at your Milestone meetings.

40% **Accomplishments:** There will be four required applications that you will build from end-to-end. Details for these apps will be provided as they are assigned, but they will roughly fall into four themes: Utility, Individual game/puzzle, "Connected" App, and Personal Choice.

Letter grades will be assigned based on the following scale.

	$87 \leq$ B+ < 90	$77 \leq$ C+ < 80	$67 \leq$ D+ < 70	
$93 \leq$ A	$83 \leq$ B < 87	$73 \leq$ C < 77	$63 \leq$ D < 67	F < 60
$90 \leq$ A- < 93	$80 \leq$ B- < 83	$70 \leq$ C- < 73	$60 \leq$ D- < 63	

FINAL EXAM TIME: 5/4 2:00

This time will be dedicated to showcasing selected accomplishments to the class (and perhaps others).

COURSE MATERIALS

You will be required to have an Android-compatible device that you can use for development purposes. Students who do not already own such a device are encouraged to consider a pre-paid smartphone. This will give you access to a reasonable device without a large investment (usually under $50; subscription to telephone service is optional).

Development for mobile devices requires the ability to install drivers and other software tools. While this software is free, there is no guarantee that this software (especially drivers) will be installed on college-owned computers. It is the student's responsibility to ensure that you have access to a computing environment that you can configure to meet your development needs.

There is not a required textbook for this class. Android is a rapidly evolving technology that is not compatible with the pace of printed textbooks. The best place to find current information on this topic is online, specifically at: https://developer.android.com/develop/index.html

There are numerous "trade-press" books that offer reasonable introductions to the current state of the technology at a more reasonable cost. If you prefer to have a tangible book, most of them will provide the material that you need. However, rather than investing in a single textbook that will be dated before the end of the course, I strongly encourage you to consider subscribing to the ACM learning center. Students can purchase a membership for $19 at http://www.acm.org/membership/student/benefits. This will give you access to multiple books on Mobile development – as well as a range of other topics.

COURSE POLICIES

Attendance Policy
Class attendance is vital to your success in this course; material covered during missed sessions is the responsibility of the student. Conversations held in class illuminate the published class materials and should not be missed.

Office Hours
Office hours are an opportunity for you to clarify details you may have missed in class, discuss general computer science issues, or to have a profound conversation about marmots. It is time that is reserved for you; I may appear busy, but you are not interrupting me – unless another student has arrived first. If you come to office hours with a problem on the assignment, you should come prepared to answer questions, as well as ask them. If you have questions regarding code, you also should come prepared with access to an electronic version of your work.

Academic Integrity and Class-based open source

Code that you produce for this class should be considered as open-source for the members of this class. You are encouraged to collaborate freely with other members of the class. Nevertheless you are responsible for your own complete submission, and your final product should reflect your personal design and customizations. With respect to writing code for this class:

- You are expected to document any collaboration that takes place.
- Absolutely no electronic transfer of code between students is permitted.
- Any code that you "find" on the Internet must be cited, with an active link to that code.
- While you are encouraged to engage in conversations in online forums, under no circumstances are you permitted to solicit other individuals to complete your work for you.
- "Divide-and-Conquer" is not a legitimate form of collaboration for this class. Every student is responsible for engaging in all aspects of a submission; you may not split portions of the assignment to be completed by certain individuals without explicit permission.

Ultimately, YOU are responsible for all aspects of your submissions. Code will be evaluated based on your ability to explain what it does. Failure to be able to explain and defend your submission to my satisfaction will be treated as a violation of academic integrity

NOTE: If you wish to preserve intellectual property or ideas for commercial apps, you should keep this work separate from your classwork.

Special Services
If you have special academic or physical needs requiring accommodations, please meet with me during my regular office hours or schedule an appointment as soon as possible. We need to discuss any accommodations before they can be implemented.

End of Course
This course officially ends with the scheduled Final Exam session. No work for this class will be accepted beyond that point.