Computer Science 4880/5880
Programming for Mobile Devices
MWF 9:00 – 9:50

Facilitator: Dr. Stephen Hughes
e-mail: stephen.hughes@uni.edu

Office Hours:
Tues/ Thurs 1:00 – 2:00
By Appointment or Open Door.
ITTC 317

COURSE DESCRIPTION

This course will explore design, development, testing, and deployment of applications that run on the Android environment. Topics include the Android Software Development Kit (SDK), 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.

CLASS ENVIRONMENT

This class will be taught in a studio-based environment. This means that a significant portion of your efforts will be directed toward exploration, collaboration, failure, discovery and reflection. There are several components of this course that will support this approach:

Proof-of-Concept Activities: Each week you will be responsible for producing an artifact that demonstrates a concept associated with the current discussion topic for that week. This is not intended to be a fully-functioning, polished or complete app – quite the contrary. Instead, you are challenged to develop something that isolates a particular concept or skill and demonstrates that you have a reasonable command of how to manipulate it. You should be prepared to not only share this proof-of-concept with the class, but also discuss why/how it works (or why/how it *doesn't* work).

Developer's Journal: Anyone who is serious about innovation knows that it isn't enough to solve *one* problem; a solution itself is not the end goal. To remain innovative, requires you to understand how to solve problems. The Developer's Journal is designed to help you track your approach to problem solving, and *reflect* on that process. The journal is also is a great place to record your ideas and inspirations that can guide your exploration of a topic – "How'd they do that?"

Class-based open source: All code that you produce for assignments and proof-of concept activities should be considered open-source for the members of this class. You are encouraged to review previous submissions as well as collaborate freely with other members of the class. Collaboration with other class members should be recorded in your developer journal and any "borrowed" code (including code that was heavily modified) should be clearly documented internally.

Friday Forums: Friday class sessions are reserved for presentation and discussion of student work. You will have the opportunity to share your work with small groups and with the class as a whole. Occasionally, this time period will be used to discuss current events or news topics that are relevant to Mobile Computing.

Studio Work: We will regularly set aside class time to actively work on development activities. This time allows for ad hoc partnering with class members to compare notes or for established project teams to meet and collectively work on project components. It also allows the instructor to become part of the process for a significant chunk of time.

COURSE MATERIALS

You will be provided with a mobile device for the duration of your enrollment in the course. It should be used strictly for class-related activities (which can be loosely translated given the exploratory nature of this class). Telephone service will not be included with the device.

There is not a "required" textbook for this course; there are numerous resources that can be found online to support our objectives. Two resources that you should become familiar with are:

- http://developer.android.com/guide/index.html
- Professional Android 2 Application Development by Reto Meier
  (Available as an e-book through the Rod Library)

Other textbooks are available in electronic format (as well as hard-copy). Some that I have found useful are:

- *Hello, Android: Introducing Google's Mobile Development Platform*
  by Ed Burnette
- *Android Wireless Application Development (Developer's Library)*
  by Shane Conder and Lauren Darcey
- *Pro Android 2*
  by Dave MacLean

STUDENT ASSESSMENT

40% **Proof of Concept Activities:** As described above, POC activities are intended for experimentation with concepts introduced in class. You are proving to yourself that you understand a given concept or skill. Evaluation of these activities will be based on a combination of the work product and a written reflection of what was accomplished.

15% **Tasks –** These represent more traditional assignments. They will take the form of written responses or specific programming tasks. Throughout the course of the semester you will be assigned approximately 3 to 5 tasks.

15% **Journals** Your journals will be collected periodically for review. Evaluation of journals will be based on completeness and depth.

30% **Project -** Over the course of the semester, you will work as part of a two- or three-person team to design, implement and deploy a larger, more polished app.

Friday Forum. You will be required to give a brief class presentation during at least one forum session. Attendance and participation at the Friday forums is mandatory. Your first absence is excused; each additional absence will result in a 2% penalty to your grade.

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	

COURSE POLICIES

Prerequisite
As a prerequisite for this course, you are expected to have earned a grade of C or better in CS 1520 (052) and CS 1800 (080). If this is not the case, please contact me immediately.

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. Attendance at the Friday Forums is mandatory and will be factored into your grade.

Office Hours
Office hours are an opportunity for you to clarify details you may have missed in class. 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
Honesty and integrity are qualities we value in ourselves and in others. Therefore, you are expected to be fully aware of your responsibility to maintain the highest degree of integrity in all of your work. It is accepted that you have read and understood the standards for academic integrity at the University of Northern Iowa, and will abide by these standards for this course.

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

A NOTE FROM THE PROFESSOR

Mobile computing is one of the "hot topics" in Computer Science right now, but it is by no means an established discipline. The Android platform is the emerging leader in this nascent field, but there is no guarantee that it will even exist when you celebrate your 10-year reunion. I will remind you that Android wasn't even implemented when most of you arrived on campus for the first time.

With this in mind, I want you to think carefully about what you intend to take from this course. Surely, a command of the details and specifics of Android have immediate value in the job market. However, I am confident that at some point in your career you will be asked to learn a new environment. It is my hope that your experience in this class will serve you well as you face that challenge.

My expectations for this course are high, but fluid. I reserve the right to change any element of this syllabus.