

Mobile App Development

MWF 9:00 – 9:50

Facilitator: Dr. Stephen Hughes
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Office Hours:
Wed/Thurs 10:00 – 11:00
By Appointment or Open Door.
BCS 128G

COURSE DESCRIPTION

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

Previous programming experience is neither required nor assumed.

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: You will be responsible for regularly producing artifacts that demonstrate a comprehension of concepts associated with the current discussion. These are not intended to be fully-functioning, polished or complete apps – 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 your proof-of-concepts with the class, but also discuss why/how it works (or why/how it *doesn't* work).

Class-based open source: All code that you produce for proof-of concept activities or other class assignments should be considered open-source for the members of this class. If you wish to preserve intellectual property or ideas for commercial apps, you should keep this work separate from your classwork. You are *encouraged* to review previous submissions as well as collaborate freely with other members of the class. Collaboration with other class members, including any “borrowed” code, should be recorded and clearly documented in your submission materials.

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. You should expect to be called upon to present and discuss your work with small groups and with the class as a whole.

COURSE MATERIALS

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 will be installable on university-owned computers. It is the student's responsibility to ensure that you have a computing environment that you can configure to meet your development needs.

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. If you wish to use your own (Android-based) mobile device for this course, you are free to do so. You will be responsible for returning this device at the completion of the course in the same condition in which it was issued.

Textbook:

Munro, J. (2012). *20 Recipes for Programming PhoneGap - Cross-Platform Mobile Development for Android and iPhone*. O'Reilly. ISBN: 978-1-449-31954-0

Additionally there are numerous resources that can be found online to support our objectives. Some websites that you should become familiar with include:

- <http://appinventor.mit.edu/>
- <http://phonegap.com/>
- <http://www.w3schools.com/>
- <http://stackoverflow.com/>
- <http://jquerymobile.com/>
- <http://www.androidpatterns.com/>

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.
- 20% App Projects and Tasks:** Over the course of the semester, you will work as part of a rotating two- or three-person team to design and implement (and deploy) larger, more polished apps.
- 30% Individual Assessment Meetings:** You will be required to have three one-on-one conversations with the course instructor to discuss your individual progress toward the course objectives. You should expect to review some particular code that you have produced as well as discussing your overall growth as a mobile app developer.
- 10% Contributions to the Studio:** You will be required to regularly share your learning with other members of the studio. This will include presentations and discussions as well as sharing your code with the class repository.

Letter grades will be assigned based on the following scale.

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

COURSE POLICIES

Prerequisite

There is no prerequisite for this course. Previous programming experience is neither required nor assumed, although students will probably benefit from previous exposure to web development (HTML, CSS and JavaScript).

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. Moreover, excessive absences will hinder your ability to make contributions to the studio and will likely impact your overall 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.

Unlike many courses that you have taken, or will take, this course is designed to encourage and promote collaboration. Do not mistake this as a license to cheat. It is one thing to *learn* from and with your peers, it is another to pass their work off as your own. You are ultimately responsible for all aspects of your submissions; the degree to which can explain and defend your understanding will determine your success in 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.

Late Work

All assignments are expected to be submitted on time. I understand that events sometimes conspire against us. If your work is going to be late, you should contact me in advance to *negotiate* a new deadline. Work that is submitted late without prior approval will not receive full credit; work submitted beyond two weeks of the deadline will not be accepted.

End of Course

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