Computer Science 705
Mobile Development Studio
Spring 2015 2:00 – 2:50 MWF
Stuart Hall 208

Instructor: Dr. Stephen Hughes  
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Phone: 399-8231

Office Hours:
Mon 3:00 – 4:00
Thurs 10:00 – 11:30
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 using multiple development environments. 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.

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).

Class-based open source: Code that you produce for proof-of-concept activities and other class assignments 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. Nevertheless you will be responsible for your own complete submission, and, in most cases, your final product will reflect your personal design and customizations (i.e. there will not be “a” solution that can be copied). NOTE: If you wish to preserve intellectual property or ideas for commercial apps, you should keep this work separate from your classwork.

Friday Forums: Many 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

Textbook:

This is a reasonable resource that captures much of what we will address in class. If you enjoy using e-books, this book, and many, many others, are available through the ACM learning center. Students can purchase the student membership at [http://www.acm.org/membership/student/benefits](http://www.acm.org/membership/student/benefits).

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.

STUDENT ASSESSMENT

25% 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 Proof-of-Concept work on the class repository.

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 concepts. You should expect to review some particular code that you have produced as well as discussing your overall growth as a mobile app developer.

25% Tasks: These represent more traditional assignments. They will take the form of written responses or specific programming activities. This course will assign approximately 3 to 4 tasks.

20% Project: The final project for this course will consist of a moderate scale, polished app, or a suite of smaller, related polished apps. The quality of the project should mirror the size and scope of popular apps that you would find on the market. You will be responsible for employing established software engineering practices to design and implement your app.

Letter grades will be assigned based on the following scale.

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<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>93 ≤ 90</td>
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<tr>
<td>B+</td>
<td>87 ≤ 90</td>
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<tr>
<td>83</td>
<td>77 ≤ 80</td>
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<tr>
<td>C+</td>
<td>67 ≤ 70</td>
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<tr>
<td>B</td>
<td>83 ≤ 90</td>
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<td>C</td>
<td>77 ≤ 80</td>
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<tr>
<td>67</td>
<td>60 ≤ 67</td>
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<td>D+</td>
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<td>D</td>
<td>60 ≤ 63</td>
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<td>F</td>
<td>≤ 60</td>
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**FINAL EXAM TIME:** 5/4 2:00

This time will be dedicated to showcasing your final project to the class (and perhaps others).
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. 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, 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
Honesty and integrity are qualities we value in ourselves and in others. 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 outlined on page 41 of the Coe College Catalog, and will abide by these standards for this course.

I believe that you can learn a lot from your peers, both in the class and in the broader community. Therefore, I strongly encourage collaboration with both. However, 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. 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. Failure to be able to explain and defend your submission to my satisfaction will be treated as a violation of academic integrity.

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 started high school.

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 programming model or to harness the potential of some other emergent technology. 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 believe that the studio approach will provide you with an environment and a direction that is ripe for learning. I’m counting on your efforts, enthusiasm and initiative to ultimately make this course a success.

I reserve the right to change any element of this syllabus.