Programming Handheld Systems
CMSC436
Fall 2013
Course Goals

Introduce programming technologies & design approaches for handheld systems

Study relevant applications to better understand these technologies & design approaches

Construct our own applications using the Android Platform
GENERAL TOPICS

Basic Android Platform
   APIs & underlying patterns
Higher-level services
   Maps, Sensors, Networking, etc.
Special topics & Projects
Basic Platform

Overview
Android Development tools
Application Building Blocks
As we go along, I’ll point out the patterns and approaches that underlie Android (and other platforms as well)
Higher-Level Services

Maps

Sensors

Networking

Internet

Bluetooth & USB
Special Topics

Security
User Interface Design
Programming Patterns
Others?

Let’s hear from you
Semester Project

You will do one large semester
Will work in 3–5 person teams
I will post some project suggestions and allow students to provide some of their own
Students will bid on specific projects and then be assigned to teams
Teams will formally present their projects at the end of the semester
Class Style

This course will use the “Flipped Classroom” approach

Not really new, but gaining in popularity now

http://www.khanacademy.org

http://coursera.org

https://www.udacity.com
Traditional Approach

1. Professor first introduces concepts in classroom lecture

2. Students experiment with the concepts outside of class through homework and projects
TIME

homework from the previous class

first exposure via lecture

deeper understanding via homework

CLASS

https://docs.google.com/document/d/1arP1QAkSyVcxKYXgTJWCrJf02NdephTVGQltsw-S1fQ/pub#id.suagqb7wve21
**Flipped Approach**

1. **Students first introduced to concepts outside of class, usually via, online videos and activities**

2. **Students & Instructors experiment with the concepts in class through labs & projects**
Organization

Videos & online Activities will be available ~ 1-week before class

Class time used for

Q&A

Just-in-time learning

Quizzes

Focused Activities

Laboratories
Not sage on the Stage, but Guide by your side.

Ben Shneiderman
EXPECTED BENEFITS

THE ONE WHO DOES THE WORK, IS THE ONE WHO LEARNS
Expected benefits

Valuable class time is available for hands-on activities that cement learning

Instructors are available when students are experimenting
EXPECTED BENEFITS

HELPs PERSONALIZE LEARNING

ALLOWS INSTRUCTORS TO RESPOND MORE DYNAMICALy TO STUDENT NEEDS
Implications

You **must** be prepared before you come to class. This includes:

Watching the videos
Participating in forum discussions
Preparing & submitting questions
Submitting any required work
Implications

You must attend class
Attendance will be taken every class
Each week's grade includes
preparation,
attendance &
lab completion
Implications

**You** will learn by doing

If **you** don’t put effort into the class, **you** will learn very little
Additional reference materials

Lots of resources
  many on-line and free
I’ll point some out during the semester
Find your own & share
  If you copy code from any resource, acknowledge it
Weekly Work

Complete Labs from current week
Watch video & complete associated activities for upcoming week
Work Submission

Each week's work due at Midnight (23:59:59) each Sunday

By Unix time of day
Work Submission

You must submit a good-faith effort

Can be failed for the course if you do not

Late submission up to 9am the next morning

Score is multiplied by 0.8 (it’s not in your best interest to submit late)

Only last submission will be graded!
Work Grading and Class Accounts

We will use the SubmitServer system for work submission (submit.cs.umd.edu)
Work Grading and Class Accounts

Laptop cart will be available
At various points, we’ll have some handheld devices available as well
I encourage students to use their own laptops and devices for course work
Work Grading and Class Accounts

Course grades and accounts will be managed using grades.cs.umd.edu
All linked from course web page resources
Software & Hardware

The TA and I will mostly be using:

Java 1.6

Eclipse 4.2 (Juno)

If you can, please bring your laptop to class, so you can have your own environment set up the way you want.
Exams

Midterm: Oct. 17th
Final: Thursday, Dec. 19, 10:30am–12:30pm
## Grading

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<tr>
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<td>Weekly work</td>
<td>45</td>
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<td>Semester Project</td>
<td>30</td>
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Discussion and Questions

Web forum (Piazza)
Web-based discussion pages
Can post to forum from off-campus
Linked from course web page
Discussion and Questions

Post questions, comments, pointers to resources, test cases, etc.
Will be monitored by professor and TA
It's your forum, though. Speak up, but be professional
DISCUSSION AND QUESTIONS

USE GOOD JUDGMENT

COLLABORATION IS HIGHLY ENCOURAGED

EXCEPT FOR TASKS DESIGNATED AS "INDIVIDUAL EFFORT"

POSTING CODE OR PSEUDOCODE THAT GIVES AWAY EXACT SOLUTION APPROACHES, ROBS STUDENTS OF THEIR CHANCE TO FIGURE THINGS OUT. PLEASE DON'T DO THIS.
PERSONNEL

Professor: Adam Porter,
aporter@cs.umd.edu
4125 AVW

TA: Bryan ta
bryanta@cs.umd.edu

Office hours in 1112 AVW

All hours will be posted on web page
http://www.cs.umd.edu/class/fall2013/cmsc436
Or set up an appointment
Excused Absences

Religious holidays or other personal conflicts

Let us know as soon as you can

Medical and other emergencies

Must provide documentation stating what dates/times you were incapacitated

Self reporting is not sufficient
Stay up to Date

http://www.cs.umd.edu/class/fall2013/cmsc436 Contains:

Announcements
Lecture notes
Project assignments
Resources
And more!
First Assignment

To get you ready for our flipped classroom approach,

this first week’s work will be ungraded

Before Thursday’s class, go to:

http://learn-android.appspot.com

Register as a student

Watch the Video for unit 1 & do the associated Activities