Compsci 290.3, Spring 2017
Software Design and Implementation: Mobile
Landon Cox
Owen Astrachan

http://www.cs.duke.edu/courses/spring17/compsci290.3
See also Sakai @ Duke for all information
Hello!

- **About me**
  - Duke undergrad
  - Michigan PhD
  - Sabbatical at Facebook

- **Research interests**
  - OS, distributed systems
  - Privacy and security
  - Moving into robotics
Hello!

- **About me**
  - Schools with the letter 'D'
  - Lots of Duke Connections
  - Google v Oracle

- **Research interests**
  - Astrachan's Law
  - Teaching Computer Science K-12, College
  - Design Patterns resurfacing
Where does 290.3 Fit?

● **Alternative to 308: Software Design and Implementation (Mobile)**
  - Many concepts are the same
  - Platform is different
  - Many issues in mobile aren't on the desktop (more later)

● **Fit into curriculum**
  - Design and deliver in teams is good for ...
  - Good design comes from experience, experience comes from bad design (attributed to many)
Goals and Learning Objectives

● Turn ideas and specifications into working, mobile Android applications
● Work collaboratively on a small team
● Leverage and demonstrate understanding of tradeoffs in creating code for mobile device(s) from software perspective
● Demonstrate understanding of privacy and security concerns related to mobile apps
● More ...
Administrivia

● **We will have readings for the course, these will be online**
  - synched with 308 when feasible/possible
● **Books completely optional, lots of material on the web, but books can be very useful**
● **Projects, groups, midterm, final**
Java Classes, Review

- **Class encapsulates state and behavior**
  - State is typically private
  - Android uses `mInstanceVar` convention

- **Class is an object factory**
  - Calling new creates a new instance
  - Everything in Java is a pointer/reference
Classes and objects

- Classes communicate and collaborate
  - Parameters: use-a, send and receive
  - Containment: has-a, aggregate or responsible
  - Inheritance: is-a, extends, specializes

- Inheritance and interfaces
  - More on this throughout semester, especially at beginning
Android Walkthrough

● See android demo