**CS 855 – Mobile Computing**
**Winter 2017**

Instructor: **Dr. Orland Hoeber**
Lectures: **T/Th 1:00 – 2:15 PM (CL 435)**
Webpage: **http://www.cs.uregina.ca/~hoeber/teaching/cs855/2017W/**
Email: **orland.hoeber@uregina.ca**

Office Hours: **T/W/Th 11:00 AM – 12:00 PM (other times by appointment only)**
Office: **CW 308.25**
Phone: **306-585-4598**

## Calendar Description

Mobile Computing focuses on conducting research in the design, development, and evaluation of software in a networked mobile environment. The primary topics to be covered in the course include network computing, graphics programming, human-computer interaction, and evaluation methods, all focused on the challenges and opportunities afforded by modern mobile computing devices.

## Hardware and Lab

This particular offering of the course will use the iPhone/iPod Touch/iPad as the particular mobile platform. All programming tasks for the assignments and project will be done in Swift and will be written for iOS 10. This mobile platform will allow us to take advantage of advanced sensors, networking, graphics, and multi-touch interaction. A small number of iPod Touch devices may be available on a sign-out basis for testing of assignments and project work.

Since the software development kit will only run on a Mac OS X platform, a shared laboratory (UDML – CL 135) will be available for students to use who do not have access to a personal Mac computer.

## Textbook & Readings

Matt Neuburg, iOS 10 Programming Fundamentals with Swift, O'Reilly Media Inc., 2017
ISBN: 978-1-491-97007-2

R. Harison, D. Flood, and D. Duce, Usability of mobile applications: literature review and rationale for a new usability model, Journal of Interaction Science, 1:1, 2013.

Swift Documentation
https://swift.org/documentation/

Readings from the iOS Developer Library
https://developer.apple.com/library/ios/navigation/

**Evaluation**

The final grade in the course will be determined as follows:

|  |  |  |
|---|---|---|
| Assignments | 2 x 10% | 20% |
| Position Papers | 2 x 10% | 20% |
| Project Milestones | 5/5/5/25% | 40% |
| Final Exam | (Apr 27) | 20% |
| **Total** | | **100%** |

\* In order to pass the course, you must pass the final exam. Your final mark may be adjusted by +/– 5%, at the instructor's discretion.

**Course Schedule & Topics (Tentative)**

| Topic | Date | Topics |
|---|---|---|
| 0 | January 5 | **Syllabus & Introduction** |
| 1 | January 10/12 | **Fundamentals of Swift** <br> Readings: Chapters 1–5 |
| 2 | January 17/19 | **Xcode and iOS Programing** <br> Readings: Chapters 6–9 <br> Readings: Start Developing iOS Apps (Swift) <br> **Project Proposal (Jan 19)** |
| 3 | January 24/26 | **Anatomy of an iOS App** <br> Readings: App Programming Guide for iOS |
| 4 | January 31/February 2 | **The User Experience & Design** <br> Readings: iOS Human Interface Guidelines <br> **Assignment 1 Due (Feb 2)** |
| 5 | February 7/9 | **Touch Programming** <br> Readings: Event Handling Guide for iOS <br> **Position Paper 1 Due (Feb 9)** |
| 6 | February 14/16 | **Graphics & Animation** <br> Readings: View Programming Guide for iOS <br> Readings: Core Animation Programming Guide <br> **Project Design (Feb 16)** |
| | | **Midterm Break** |

| Topic | Date | Topics |
|:---:|---|---|
| 7 | February 28/March 2 | **Network Programming**<br>Readings: UIWebView<br>Readings: NSURL, and NSURLConnection<br>**Assignment 2 Due (Mar 2)** |
| 8 | March 7/9 | **Project Self-Help** (No Lecture, Mar 7)<br>**Industry Guest Lecture** (Mar 9) |
| 9 | March 14/16 | **Advanced Networking**<br>Readings: Grand Central Dispatch<br>Readings: Push Notifications<br>**Project Update (Mar 16)** |
| 10 | March 21/23 | **Persistent Data Storage**<br>Readings: File System Programming Guide<br>Readings: Archives and Serializations<br>    Programming Guide<br>**Position Paper 2 Due (Mar 23)** |
| 11 | March 28/30 | **Sensor Programming**<br>Readings: CoreLocation & MapKit<br>Readings: CoreMotion |
| 12 | April 4/6 | **Evaluation Methods**<br>Readings: Usability of Mobile Applications |
| 13 | April 11 | **Project Demos**<br>**Project Submission (Apr 11)** |

The **Final Exam** has been scheduled for April 27 from 2:00 – 5:00 PM. The exam will be comprehensive, covering the entire breadth of topics covered in the course.

**Lectures and Lecture Notes**

Lectures will be held twice per week: T/Th 1:00 – 2:15 PM. All lecture notes and assignments will be posted on UR Courses. The lecture notes should not be used as an alternative to attending the lectures. It is expected that students will attend the lectures, listen to the explanations and discussions, and take notes about the important information.

**Assignments & Project**

All assignments and project milestones are due at 11:55 PM on the specified dates, and must be submitted electronically via UR Courses. Late submissions will not be accepted, but the grades for missing assignments may be moved to the final exam under exceptional circumstances, and with appropriate documentation.

**Grades**

All grades will be assigned according to the Graduate Calendar: Grading System (https://www.uregina.ca/gradstudies/grad-calendar/grading-system.html):

> 95–100: An exceptional performance.
> 90–94: An outstanding performance.
> 85–89: An excellent performance.
> 80–84: A very good performance.
> 75–79: A good or satisfactory performance.
> 70–74: A minimally acceptable performance or marginal pass.
> 0–69: An unacceptable or failing performance.

**Other Notes and Information**

1. The best way to contact me is via email.
2. You should send class-related email using your University of Regina account only. This will ensure that spam filtering does not keep your email from getting to me.
3. You should check UR Courses and your University email on a regular basis. Important announcements for this class will be made on UR Courses. Other announcements and direct communication will be via email.
4. Students are expected to attend the lectures. If you must skip a lecture, it is your responsibility to find out from classmates what you missed.
5. Although group discussions and study groups are encouraged, all assignments and project work are to be completed individually. Group discussions should be focused on general concepts, ideas, and lecture materials, and not the specifics of any assignment.
6. Group work is permitted in the project, but must be limited to include only those in your documented group.
7. Plagiarism and other forms of academic misconduct will not be tolerated. It is up to each student to understand the rules and regulations pertaining to this (Graduate Calendar: Policies and Procedures of the University: Academic Conduct and Misconduct, https://www.uregina.ca/gradstudies/grad-calendar/policy-univ.html#conduct). Be aware that not only is the act of copying the work of another considered plagiarism, so is the act of allowing another to copy your work.