**Omnibus\* Course Syllabus**

**School of** **Letters, Arts, and Sciences**

**Department**: Mathematical and Computer Sciences **Instructor:** Aaron Gordon

**Prefix and Course Number**: CS 390\_\_\_ **Semester/year offered:** Fall 2012

**Banner Number (for Academic Affairs use):**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(**Students registering after Census date** will be **ineligible for the COF stipend** and must pay the full tuition for the omnibus course. Please see COF-FAQ for details regarding registration deadlines: <http://www.mscd.edu/news/cof/cof_faq.htm>)

**Course Title**: Mobile Device Programming

**Credit Hours**: 4 (4+0)

**Total Contact Hours per semester (assuming 15-16 week semester):**

Lecture 60 Lab 0 Internship 0 Practicum 0 Other (specify type and hours): 0

**Meeting Times/Dates**:

**Grading Mode(s)**:  L **Schedule Type(s):**  L

**Prerequisites**: CS2050 with a grade of ‘C’ or better + 8 upper-division computer science hours or consent of instructor

Corequisites:

Banner Enforced:

Prerequisite(s): CS 2050 with a grade of C or better

Corequisite(s):

Prerequisite(s) or Corequisite(s):

**Course Description:**

Programming mobile devices, such as cellphones, involves different issues from programming a typical computer. The mobile-device has a small screen, limited memory, no hard drive, uses a multi-touch interface, and incorporates hardware sensors such as GPS, accelerometer, camera, and so on. In this course we will look at these issues and develop software for mobile platforms. We will look at different technologies for programming these devices and write programs using at least two of these technologies.

**Required Reading Materials**

Allen, G. (2012), *Beginning Android 4*, Apress

Knaster, S. (2012) *Learn Objective-C for iOS and OS X*, Apress

**Evaluation of Student Performance** (*format* - 1, a, i, ii, etc.):

1. Programming assignments and projects.

2. 1 mid-term exam

3. a writing assignment

4. a final exam

Specific ***Measurable*** Student Behavioral Learning Objectives (*format* - 1, a, i, ii, etc.):

**Upon completion of the course the student should be able to:**

1. Load programs into a mobile device
2. Write programs that use input from a multi-touch screen
3. Write programs that use input from a GPS
4. Write programs that use input from an accelerometer.
5. Write programs that manage their own memory.
6. Discuss human-computer interface issues involved with designing software for a small touch screen.
7. Discuss security issues related to mobile device software.

**Detailed outline of course content** (major topics and subtopics) (*format* – I, A, 1, a, etc.) – please see note[[1]](#footnote-1) below:

1. Introduction to mobile computing
2. Programming for the Android device
3. Mobile Hardware Technology
4. Event-driven programming
5. Sensing and actuating
6. Programming for the IOS device
7. Security and privacy for mobile devices
8. Hybrid applications: mobile and fixed device cooperation
9. Context aware computing

***Excerpt from***

**METROPOLITAN STATE COLLEGE *of* DENVER**

**GUIDELINES FOR THE PROTECTION OF HUMAN SUBJECTS**

*Available in full on the MSCD web site:* <http://clem.mscd.edu/~forrestj/HSRC%20Docs/The%20Policy.doc>

Research Projects Conducted in Research Classes. Developmental and institutional guidelines for confidentiality and research with human subjects will be taught in depth as a part of course requirements for research classes. Students will be required to develop their own informed consent forms or to use forms developed by faculty members which conform to College guidelines and Department policy (*see link above*). All student projects will be reviewed and approved by faculty prior to recruiting subjects. (*See Example 3 consent form at this link:* [*http://clem.mscd.edu/~forrestj/HSRC.htm*](http://clem.mscd.edu/~forrestj/HSRC.htm)).

\*\*\*

**This required course content MUST be part of the “Detailed outline of course content” section of the omnibus course syllabus OR a statement must be attached that clearly states how the proper procedures have been followed by the course instructor and/or the student.**

**The Associate VP for Academic Affairs cannot sign an omnibus syllabus that appears to involve human subjects and/or personal data unless this information is provided.**

1. note: If the omnibus course includes student and/or course instructor research that involves **(1)** interviewing subjects **and/or (2)** handling personal data **and/or (3)** topics which could be viewed as “sensitive” (e.g., personal political views, health data, sexuality, etc.), **then approval by the Office of Academic Affairs will require assurance that the guidelines described at the end of this document have been followed.** [↑](#footnote-ref-1)