SSCI 599 – Mobile GIS
Course Syllabus Spring 2013

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Office Hours: (tentative) Monday – Friday by appointment
Available asynchronously via email. Also available for synchronous chats via Skype or Adobe Connect, audio or video most days and times *by prior arrangement* via email.

Course Scope and Purpose

This course is designed as an introduction to mobile GIS, and more importantly, to the programming concepts underlying mobile GIS development. There is no book for this class since we will be using the most recent online resources, but you are required to buy a Google Nexus 7 Android tablet for the class. All course assignments will be done using this specific device and no exceptions will be made.

This class will be very time intensive and involve programming. If you are going to take this class you must be familiar with object-oriented programming and concepts such as variables, loops, and logic. It will take more time than other courses in the program so if you are not able to dedicate the time this semester consider taking a different elective or taking the course at a different time. SSCI 591, Web GIS, is a great course to learn contemporary programming concepts and languages such as Javascript. Therefore, you must complete that class and be familiar with programming before taking this course.

For this class you must be comfortable using the web to search for concepts and terms that come up in the course when you do not understand them. Web searches and existing discussion boards are where to find the latest up-to-date information pertaining to mobile devices and GIS. These technologies are all very new and are quickly changing so we will all be learning together throughout the semester.

We will cover several topics:

Mobile GIS Basics – We start by focusing on basic concepts that are fundamental to understanding mobile GIS. These include data collection, visualization, and manipulation with a mobile environment.

Software and Tutorials – This course centers on the open Android platform and programming in object-oriented languages, particularly Java and Javascript. We will utilize existing APIs and SDKs available on the web.

Application Development – During this hands-on part you will choose an independent project where you will design and implement a mobile GIS application. We will finish with an outlook on the future of mobile GIS.

Learning Outcomes

When you have completed this course, you will be able to:

- Evaluate the advantages, disadvantages, and major challenges of creating and working with mobile GIS applications.
- Describe how mobile GIS and spatial concepts create powerful communication tools.
- Understand the key differences and similarities between various mobile GIS devices.
- Critically assess contemporary mobile GIS technologies
- Design and implement a mobile GIS application

Course Formats

This a graduate level course, so you should expect this class to be both academically robust and intellectually challenging. As graduate students you are expected to engage with the information you are learning and to explore the heady cauldron of ideas, opinion, and analysis that describe our collective effort to thoroughly interrogate the subject at hand. Learning arises from active engagement with the knowledge found in our reading materials and with one another. As in any graduate class, the instructor's role is that of a guide who keeps you on this path of discovery and you will find that you will learn much from your fellow classmates. The challenge for us is to replicate such an academic experience within the milieu of "distance learning".

All course materials will be organized through Blackboard. The main theoretical concepts will be provided through course notes and assigned readings. Hands-on practical exercises will use various software products accessible over the Internet. Assignments will give students an opportunity to internalize and apply the concepts and theory learned from readings. Some assignments require student interaction, all will benefit from it.

We have several technologies that will facilitate our course work and our interactions, despite our dispersed locations. These include:

Blackboard – All course materials and correspondence will be posted on the course Blackboard site. As a registered student you'll find this course will show up in your available courses at noon Pacific Time on the first day of classes. It is here that the day-to-day flow of the course will be recorded.

Discussion boards and blogs – On the Blackboard site, we'll post a number of discussion threads relevant to various sections of the course. These are vitally important when we get to the hands-on work as we expect students to work "together" on these exercises, sharing hints and help as you would do in a common laboratory classroom. Other discussion threads are to be used to organize asynchronous discussions for all of you, the students. These threads are mainly meant to be a forum for student-to-student discussion and collaboration. I may not be following these threads, so don't expect a quick answer if you decide to pose a question for me in these threads. Rather, if you want me to be involved you will need to shoot an email for me to do so.

Live meetings and presentations - At USC, we use a browser-based service called Adobe Connect to create synchronous interaction sessions. With voice and webcam capabilities Adobe Connect can be used to share presentations and even our desktops between two or more people.

Individual meetings - While Adobe Connect can be used for one-on-one meetings, we generally find it's easier to use the free VOIP and chat technology, Skype (www.ksype.com) for individual chats.

Assessments

Your grade in this class will be determined on the basis of several different kinds of assessment. Each week I will post a Weekly Assignment outlining the work you are expected to complete that week with the relevant due dates. Grading breakdown is 50% for weekly readings with tutorials and 50% for the final project.

Readings Homework – These will focus on the theory portion of the course as presented in the weekly readings. Their objective is to help you evaluate and integrate the information you have acquired from the course readings. Some of these will involve discussions and collaborative work, some will be individual efforts, one early in the term will involve a one-on-one presentation to the instructor. Late submissions will be docked one grade. No grade will be given for assignments turned in over one week late.

Tutorials – Most weeks you are expected to work through tutorials in programming languages and various APIs associated with mobile devices. These are graded on a credit/no credit basis, with no credit given for late submissions.

Final Project – The Final Project is your opportunity to integrate all that you have learned in the semester. In the Final Projects you will:

1. Design a mobile GIS application for a specific purpose and audience of your choice.
2. Select and implement your chosen mobile GIS application in your production environment.
3. Implement capabilities for the user based on your application's purpose and goals.
4. Produce a final product that demonstrates the results of your final project work.

The Final Project will have 4 components:

1. Proposal – one paragraph description of the proposed project.
2. Technology report – a report on the software implemented for the project and any data acquired for the project.
3. Presentation – consists of slides presenting: the plan and purpose of the project, the mobile GIS application; a description of the development and implementation of the application; issues encountered while completing the project; a demo of the mobile GIS application and its capabilities.
4. Final report – due after the presentation to allow time for final revisions.

Requirements

Technology – There are several technology requirements:

- You must have a Google Nexus 7 tablet by the first week of the semester.
- Every student must have a computer with a fast Internet connection (DSL at a minimum). Since we now serve the key software from the Server, you can use either a Mac or a PC.
- Every student must have a functional webcam for use whenever a presentation or meeting is scheduled.

Communications – This is a distance learning course, so most of our interactions will be asynchronous (not at the same time). All materials to be handed in will be submitted via the Blackboard Assessment link. I will also create at least one Blackboard (BB) discussion forum

at the start of the semester and I may create and/or monitor additional BB discussion forums through which you can discuss course-related topics as well as assist each other with comments on the course assignments, exercises and projects as the need arises.

I will send via email through Blackboard any notices that are time sensitive. Please be sure that you read as soon as possible all email sent from Blackboard or from me. Also double check to be sure that mail sent from both the USC blackboard accounts and my email (pultar@usc.edu) does not go into your junk mail!

Your responsibility: It is each student's responsibility to stay informed about what is going on in our course. In addition to email about time-sensitive topics, any important announcements will be posted on the Announcement page in Blackboard. Be sure to check these each time you log onto Blackboard.

Workload –Students should expect to spend at least 10-12 hours per week (perhaps more) completing the work in this course.

Students with Disabilities

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. More information about academic accommodations based on a disability can be found at: http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to an instructor as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

Statement on Academic Integrity

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. Scampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions can be found at: http://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/.

Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: http://www.usc.edu/student-affairs/SJACS/.

*Important Administrative Dates**

1/14: Spring semester classes begin
1/21: Martin Luther King Day, university holiday
2/1: Last day to register and add classes
2/1: Last day to drop a class without a mark of "W" and receive a 100% refund
2/18: Presidents' Day, university holiday
3/18-23: Spring recess
3/25: Deadline to submit signed Approval to Submit form to the Graduate School**

4/1: Deadline to upload thesis or dissertation manuscript**
4/12: Last day to drop a class with a mark of W
5/3: Spring semester classes end
5/4-7: Study days
5/15: Final Examinations end
5/17: Commencement

*http://www.usc.edu/academics/classes/term_20131/calendar.html
**http://www.usc.edu/schools/GraduateSchool/current_thesis_dissert_03.html

Tentative Schedule

Week #	Week Begins	Theme for Reading and Practice	Assessments Due
1	1/14	Introduction to Android Technology, Mobile GIS Data	
2	1/22*		Assignment 1
3	1/28	Programming and Mobile Fundamentals	Individual Meetings
4	2/4		Assignment 2
5	2/11	Object-oriented design, ESRI & Android	
6	2/19**		Assignment 3
7	2/25	Java, ArcGIS Online and Mobile	
8	3/4		Assignment 4
9	3/11	Android Applications and Java	Project Proposal
10	3/18		Assignment 5
11	3/25	Contemporary Mobile GIS Topics	
12	4/1		
13	4/8	Future of Mobile GIS	
14	4/15		
15	4/22	Final Project	
***	4/29		Project Presentations
****	5/6		

18	5/13		Project Report

* Monday January 21 is Martin Luther King Day, USC Holiday
** Monday February 18 is President's Day, USC Holiday
*** May 4-7 listed as "Study Days" on USC calendar – No assignments or presentations due on these dates / 4 days, in order to follow the university policy
**** May 8-15 – listed as "Final Exams" on USC calendar