Overview:
This seminar will focus on the discussion of wireless mobile GIS technology and its applications. The class will provide a comprehensive literature review covering recent advancement of mobile GIS and location-based services (LBS). You will gain a deeper understanding about software and hardware frameworks of mobile GIS and related topics, including cartographic design, user analysis, locational privacy, and social impacts. Through reading journal articles, book chapters, and in-class discussions, you will be able to identify the key technologies that enable wireless communication, mobile computing, and web mapping services inside the mobile devices. You will write a white paper to demonstrate your knowledge in the domain of mobile GIS and a research paper to explore the potential of mobile GIS research and applications.

Prerequisites: Six units of upper division or graduate level courses in spatial analytic techniques. Basic understanding of GIS technology.

Textbooks:
There is no required textbook. Journal articles and book chapters and will be the major reading materials.

Grading: Your grade will be based on the following components:
- Class participation and leading discussions 30%
- One technical white paper 20%
- Final presentation 10%
- Final research paper 40%

This course is a seminar and all students are expected to (1) read the assigned material carefully before each class meeting and (2) participate in class. All students in this class are required to submit one question for each topic (1A, 1B...) on the Blackboard pertaining to the assigned readings prior to 5pm on the day (Monday) before class. Usually, each week will cover two topics. We will discuss these questions in class on Tuesday.

You will lead class discussions TWICE during this semester. A sign-up sheet will be provided on the first day of this course. You will be evaluated based on your leadership during the discussion, your ability to engage other students, your organization and presentation skills, and any supporting material you use (i.e., your PowerPoint slides or handouts).

During this semester, you need to write one technical white paper (7-10 pages in Word) on related wireless mobile GIS topics. The white paper could focus on one specific application (software) domain of mobile GIS (such as navigation/traffic, LBS, social networking, public health, weather, etc.) or the development of specific mobile device hardware and operating systems (such as Android, iPhone, Bada). The due date of technical white paper is March 16 (Tuesday) 2pm on Blackboard.
A final research paper (no page limit, in Word) should be based on your own areas of interest and the knowledge gained in the class. The topic of your research paper could be a prototype development (iPhone or Android), original ideas, techniques, designs and experiences in the field of wireless mobile GIS and location based services. The research paper will follow the format of the Journal of Location-based Services (http://www.tandf.co.uk/journals/titles/17489725.asp) and use the Word template in the Instructions for Authors (http://www.tandf.co.uk/journals/journal.asp?issn=1748-9725&linktype=44). You will submit a two-page proposal articulating your ideas and approach to this research paper by March 23, 2pm via Blackboard. The whole class will discuss and review your proposal on the same day and provide suggestions. You will make a final research paper presentation on May 11. Each presentation will be 10 minutes with 5 minutes Q&A. The final research paper due date is May 18, 5pm.

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<th>WEEK</th>
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| 1    | 26 Jan  | Introduction of Wireless Mobile GIS  
|      |         | Transborder Immigrant Tool Discussion |
| 2    | 2 Feb   | UCSD iPhone software and web development seminar. 
|      |         | (2:30pm - car pool) |
| 3    | 9 Feb   | 1A. Development History of Mobile GIS  
|      |         | 1B. iPhone Apps and SDK (REGAL user accounts) |
| 4    | 16 Feb  | 2A. Mobile Hardware and Wireless Technology  
|      |         | 2B. Android Apps and the SDK (REGAL) |
| 5    | 23 Feb  | 3A. ESRI mobile GIS development  
|      |         | 3B. Other Operating Systems (Windows mobile, Bada, etc.) |
| 6    | 2 Mar   | (NO class) |
| 7    | 9 Mar   | 4A. GPS and Navigation Systems  
|      |         | 4B. Sensor Webs |
| 8    | 16 Mar  | 5A. Mapping Services and Map Design  
|      |         | 5B. User-Centered Design for mobile GIS  
|      |         | (Technical white paper DUE: March 16, 2pm on Blackboard) |
| 9    | 23 Mar  | 6A. Location-based Services I  
|      |         | Submit Research proposal on Blackboard (two page) by March 23, 2pm.  
|      |         | (Three minutes proposal presentation in class) |
| 10   | 30 Mar  | Spring Break (No class) |
| 11   | 6 Apr   | 7A. OGC LS Standards  
|      |         | 7B. Related mobile mapping principles |
| 12   | 13 Apr  | 8A. Field-based GIS Applications: Green Technology  
|      |         | 8B. Field-based GIS Applications: Environmental Monitoring |
| 13   | 20 Apr  | 9A. Disaster management  
|      |         | 9B. Homeland security |
| 14   | 27 Apr  | 10A. Location-based Services II (new applications)  
|      |         | 10B. Mobile GIS with Cloud Computing |
| 15   | 4 May   | 11A. Mobile users and usage analysis.  
|      |         | 11B. Social Impacts and Locational Privacy |
| 16   | 11 May  | Final Research Paper presentation (10 minutes each with 5 minutes Q&A) |
|      | 18 May  | Submit the Final Research Report by 5pm, Office hour 12pm-2pm. |
Readings: (electronic copies in the Course Documents in Blackboard).

1A. Development History of Mobile GIS

1B. iPhone Apps and the SDK
- iPhone Apps Website: http://www.apple.com/iphone/apps-for-iphone/
- iPhone Dev Center (SDK): http://developer.apple.com/iphone/

2A. Mobile Hardware and Wireless Technology

2B. Android Apps and the SDK
- Android Website: http://www.android.com/

3A. ESRI Mobile GIS Development

3B. Other Operating Systems (Windows Mobile, Bada, etc.)

4A. GPS and Navigation Systems

4B. Sensor Webs
- The leader needs to find one related journal article and email it to everyone one week before the session.

5A. Mapping Services and Map Design

5B. User-Centered Design for mobile GIS

6A. Location-based Services I

7A. OGC Location Services (LS) Standards

7B. Related mobile mapping principles

8A. Field-based GIS Applications: Tourism and Green Technology
• The leader needs to find one related journal article and email it to everyone one week before the session.

8B. Field-based GIS Applications: Environmental Monitoring
• The leader needs to find one related journal article and email it to everyone one week before the session.

9A. Disaster Management
• The leader needs to find one related journal article and email it to everyone one week before the session.

9B. Homeland Security
• The leader needs to find one related journal article and email it to everyone one week before the session.
10A. Location-based Services II (new applications)


10B. Mobile GIS, Internet GIS, and Cloud Computing

- **The leader needs to find one related journal article and email it to everyone one week before the session.**

11A. Mobile users and usage analysis.


11B. Social Impacts and Locational Privacy.