GEO503 Syllabus
Mobile GIS

Course Details:

Session: Fall 2018
Classroom: Wilkeson 145C
Lecture times: Thursdays 3:30 – 6:10 pm

Instructor: Xin Tao (xintao@buffalo.edu)
Office: 131 Wilkeson
Office hour: Thursday 2:30 – 3:30 pm & by appointment

Course Description:

The emergence of highly-capable mobile devices and applications has opened new opportunity for location-based services. Mobile apps enable us to collect and analyze data wherever and whenever we are. Mobile apps are generally classified into web apps, hybrid apps, and native apps. This course covers how to develop, test, and publish mobile GIS web apps and hybrid apps working across multiple mobile platforms (Android, iOS, etc.). It uses the jQuery Mobile framework to create visually rich, interactive mobile web apps and the PhoneGap framework to compile hybrid web-native apps. This course also leverages the capabilities of developing mobile map apps using Google Map JavaScript library.

The specific objectives of this course are the followings:

- Understand mobile application development and deployment process.
- Build mobile web apps using HTML, CSS, JavaScript, and jQuery.
- Understand PhoneGap Build, PhoneGap, and Apache Cordova.
- Build mobile native apps using HTML, CSS, JavaScript, jQuery and PhoneGap Build.
- Develop mobile web GIS apps with Google Map JavaScript library and Apache Cordova.

Prerequisites:

Students are expected to have experiences in Web page development using HTML, CSS, and JavaScript. GEO503 (Web Programming for GIS) is prerequisite and knowledge about programming and scripting for GIS is recommended.

Reading:

Text book is available as EBook (on hold via UB Course Reserve service). The hard copy of the text book should be available at UB Book store.

- JavaScript Mobile Application Development, Hazem Saleh, 2014, Packt Publishing.
- Web Development with jQuery, Richard York, 2015, Wiley.
- PhoneGap: Beginner's Guide, Purusothaman Ramanujam & Giorgio Natili, 2015, Packt Publishing, 3rd Edition.
- Peterson, Michael P. Mapping in the Cloud. Guilford Publications, 2014.

Online resources:

- W3Schools online web tutorial, http://www.w3schools.com/
- PhoneGap, http://phonegap.com/
- NodeJS, https://nodejs.org/en/
- Android Developer, http://developer.android.com/
- iOS Dev Center, https://developer.apple.com/devcenter/ios/index.action
- Google Maps JavaScript API, https://developers.google.com/maps/documentation/javascript/tutorial
- App Studio for ArcGIS, http://appstudio.arcgis.com/

Course Requirements and Grading:

It is strongly encouraged to attend each lecture and actively participate in class. Lab assignments will be given to help students gain practical experience in developing websites. Students need to complete final projects to design and implement dynamic websites. Final grades will be determined by the following items:

- Labs: 3 labs (22.5% × highest 2 labs) will be announced on the class and the due dates are shown in the course schedule.
- Final project: 30%
- Presentations and attendance: 25%

Make-up Policy:

Assignments must be turned in by midnight of the day which they are due. Late assignments will result in penalties unless prior arrangements are made with the instructor. If you have a documented disability and wish to discuss academic accommodations, please contact the instructor immediately. Students should not expect incomplete grades as they will be only given under extra-ordinary circumstances.

Grading:

The plus/minus grading system will be used to assign student grades, which will be determined as follows:

93 – 100 = A
90 – 92.9 = A-
87 – 89.9 = B+
83 – 86.9 = B

80 – 82.9 = B-
77 – 79.9 = C+
73 – 76.9 = C
70 – 72.9 = C-
67 – 69.9 = D+
63 – 66.9 = D
60 – 62.9 = D
<60 = F

Minor adjustments to this scale might be made based on the performance of the class as a whole.

Academic Honesty: As a student at University of Buffalo, you have agreed to abide by the University's academic honesty policy, the Student Code of Conduct. All academic work must meet the standards described in the Student Code of Conduct found at: http://www.student-affairs.buffalo.edu/judicial/rulereg.php. Particularly, excessive copying or quoting other work verbatim, even if you provide a citation, is not acceptable. Any verbatim use of other written work will result in a substantially lower grade than if you synthesize ideas in your own words. For essays and bibliographies, the primary sources of material must be refereed journal articles. Web sites must not be the primary sources of material, but can be included as supplemental sources provided they are properly cited. Note that refereed journal articles published electronically and downloaded from publisher's web sites are acceptable. Further guidelines on written work will be provided with the respective assignments. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.

Class Policies:

UBLearns: Class materials, course announcements, and grades will be posted to UBLearns. Quizzes and assignments will generally also be administered through UBLearns.

E-mail: All correspondence will be via UBLearns and via UB e-mail. Students are responsible for checking UBLearns and their UB e-mail. The professor may not always reply to emails after 6pm or on weekends. Normally, an email would be replied within 24 hours. Emails sent over weekend may not be replied until next work day. E-mails should be respectful and professional.

Weather: In cases of extreme weather in the Buffalo/Rochester area, classes may be cancelled with prior notice.

Professionalism: Attendance is expected, if you miss class you are expected to cover the material on your own or by seeking missed material from your classmates. You are expected to be on time, lateness is disrespectful and disruptive. If you must arrive late or leave early, sit by the exit as to not disrupt the class. Cellphone use is discouraged.

Course schedule

The weekly coverage is subject to change as it depends on the progress of the class. Changes will be announced and posted on UBLearns.

Date	Topics	Assignments
8/30	Introduction to Mobile GIS Mobile App Development Approaches ESRI Mobile Solutions	
9/6	jQuery Mobile Components	Lab 1 out
9/13	jQuery Overview Review of JSON jQuery Mobile Configuration jQuery Mobile Event handlings	
9/20	jQuery working with Google Maps API	
9/27	No class (out of town)	Lab 1 due Lab 2 out Final Project Proposal out
10/4	No class (out of town)	
10/11	jQuery Mobile Themes CSS Overview	
10/18	jQuery Mobile Form Components	Lab 2 due
10/25	Introduction to PhoneGap Creating PhoneGap Apps Configuring PhoneGap Apps	Final Project Proposal due Lab 3 out
11/1	PhoneGap Ecosystem Cordova Plugin and API Cordova Events	
11/8	Review of JavaScript Review of Mobile Apps with Map APIs Cordova Plugin APIs	
11/15	HTML Form Review AJAX and JSON Review Cordova and AJAX	Lab 3 due
11/22	No class (Thanksgiving)	
11/29	GeoJSON Overview Google Maps API Review	
12/6	Review & Q/A	Final Project due