

GEOG650 Syllabus Mobile GIS

Course Details:

Session: Summer 2023

Classroom: LEF 1104

Lecture Times: Mon 10:00 am – 12:00 pm, 1:00 – 3:00 pm, Tue 10:00 am – 12:00 pm, 1:00 – 2:30 pm (GMT-4)

Instructor: Xin Tao (xintao@buffalo.edu)

Office: LEF1167

Office hours: By appointment

Course Objectives:

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 Maps JavaScript library.

The format of this course will consist of lectures, lab assignments, readings, and a final project. The lectures involve the interaction between students and the instructor in real time. The readings and lab assignments will also be posted in a timely manner.

Learning Outcomes

The specific objectives of this course are that students are expected to learn the following:

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

Prerequisites

GEOG646 is pre-requisite, or you should have a minimum of programming experience with HTML, CSS, and JavaScript.

Course Outline:

- Introduction to Mobile GIS..... 1 week
- jQuery and JSON..... 1 week
- Google Maps API..... 1 week
- Databases and server scripting language..... 1 week
- Introduction to PhoneGap..... 1 week
- Review..... 1 week

References

W3Schools online web tutorial, <http://www.w3schools.com/>
 MDN Web technology for developers, <https://developer.mozilla.org/en-US/docs/Web>
 Leaflet JavaScript Library for Interactive Map, <https://leafletjs.com/>
 Node.js JavaScript runtime environment, <https://nodejs.org/en>
 PHP Documentations, <https://www.php.net/>
 MySQL Documentations, <https://dev.mysql.com/doc/>
 Android developer, <https://developer.android.com/>

Grading:

It is strongly encouraged to attend each lecture and actively participate in the online discussion board as well as in class. Students are required to post a reply on the forums posted by the instructor. Lab assignments will be given weekly to help students gain practical experience in developing websites. Students need to complete final projects to design and implement an app.

There will be 5 labs and 1 final project. The lowest lab score will be dropped and the highest four is worth 64% of the final grade. The final project score will be worth 26% of the final grade. 10% will be based on attendance and participation.

Grade Policy:

- Project, online class activities, and labs:

	% of total grade	Due date
Project	26%	8/18
Online class activities	10%	In class
Labs	64% (16% × highest 4 labs)	7/17 (Lab 1), 7/24 (Lab 2), 7/31 (Lab 3), 8/7 (Lab 4), 8/14 (Lab 5)

Letter Grade Distribution:

The plus/minus grading system will be used to assign student grades. Minor adjustments to this scale might be made based on the performance of the class as a whole.

- 97-100.0 = A+
- 94-96.99 = A
- 90-93.99 = A-
- 87-89.99 = B+

84-86.99 = B
80-83.99 = B-
77-79.99 = C+
74-76.99 = C
70-73.99 = C-
67-69.99 = D+
64-66.99 = D
60-63.99 = D-
<60 = F

All students must have a UMD TerpConnect (used to be Glue) account to obtain permissions to upload HTML, CSS, and JavaScript files to your account on TerpConnect at <http://terpconnect.umd.edu>. All assignments should be saved in your personal directory in the remote Web server and run on the server. Details about the webserver will be provided in the class.

Academic Honesty: The University of Maryland, College Park, has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student, you are responsible for upholding these standards for this course. You need to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism.

Within our class, students may work together to review class notes and home assignments. However, assignments must be done individually. Each student must turn in his or her own work, from his or her personal computer. Any discussion or problem solution must be his or her alone, without assistance from any other person.

Accessibility Resources: Any student with a disability is encouraged to meet with the instructor privately during the first week of class to discuss accommodations. I will make every effort to accommodate students who are registered with the Disability Support Services (DSS) Office and provide a DSS accommodation form. Please refer to the Online Undergraduate Catalog Policy on Religious Observance.

Email: The instructor will always be available by email. 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.

Course schedule

The weekly coverage is subject to change as it depends on the progress of the class. However, you must keep up with the reading assignments.

Week	Date	Topics	Readings	Assignments
1	7/10 7/11	Introduction to Mobile GIS jQuery	W3Schools	Lab 1 out
2	7/17 7/18	jQuery JSON	W3Schools	Lab 1 due Lab 2 out Project Proposal out
3	7/24 7/25	Google Maps API JavaScript library for maps	Maps JavaScript API	Lab 2 due Lab 3 out
4	7/31 8/1	Databases MySQL with PHP	MySQL documentation	Lab 3 due Lab 4 out Proposal due
5	8/7 8/8	Introduction to PhoneGap AJAX	W3Schools	Lab 4 due Lab 5 out
6	8/14 8/15	Review Independent study for final project	W3Schools	Lab 5 due Final Project due