

GEO503 Syllabus Web Programming for GIS

Course Details:

Session: Spring 2018

Classroom: Wilkeson 145C

Lecture times: Wednesdays 5:00 - 7:40 pm

Instructor: Xin Tao (xintao@buffalo.edu)

Office: 131 Wilkeson

Office hour: Wednesday 4:00 – 5:00 pm & by appointment

Course Description:

The growing capability and use of the Internet has created a demand for GIS application on the Web. This course introduces the fundamental techniques required in developing client-side web application. It would cover the basics of web design using HTML5 and CSS and client-side programming with JavaScript. Students will also be exposed to the experience of practicing some client-side frameworks and libraries such as jQuery, online GIS tools such as Google Map API, and the cloud environment such as ArcGIS Online.

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

- Have an understanding about the Internet and various Web applications
- Exposed to popular programming languages and techniques used on the Web
- Can design and develop static Web sites using HTML5 and CSS
- Can develop client-side processing in JavaScript

Prerequisites:

You should have a minimum of programming experience with Python, C, or other programming languages. Web programming using HTML, XHTML, CSS, etc. will be helpful, but not required.

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.

- Peterson, Michael P. Mapping in the Cloud. Guilford Publications, 2014.
- Fu, Pinde, and Jiulin Sun. Web GIS: principles and applications. Esri Press, 2010.

Online resources:

- W3Schools online web tutorial, <http://www.w3schools.com/>
- Google Maps API <https://developers.google.com/maps/>
- ArcGIS Resource Center Web API, <http://resources.arcgis.com/content/web/web-apis>

Evaluation:

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: 2 labs (at each 25 % of the total grade) will be announced on the class and the due dates are shown in the course schedule.
- Quizzes: 2 quizzes (at each 10% of the total grade)
- Final project: 30%

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. E-mails should be respectful and professional – do not use text speech, emoji, and consider the topic of your e-mail before sending.

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. However, you must keep up with the reading assignments.

Date	Topics	Readings	Assignments
1/31	Introduction to Web GIS; Overview of online GIS	Ch. 2 & Ch. 4	Lab 1 out
2/7	The Internet and Web	Fu Ch. 2	
2/14	HTML and CSS (Cascading Stylesheet)	W3Schools tutorial	Quiz 1 out
2/21	No class (out of town)		Lab 1 due
2/28	Geographic data formats (KML)	Ch. 9	Quiz 1 due Lab 2 out
3/7	Spatial data collection; Maps from web	Ch. 2 & Ch. 5	
3/14	Understanding spatial data types (vector and raster)	Ch. 11, 14, 6, 15	Lab 2 due Final Project Proposal out
3/21	No Class (spring break)		
3/28	Online street map	Ch. 6	
4/4	Introduction to JavaScript: DOM	W3Schools tutorial	Quiz 2 out
4/11	Review of HTML and JavaScript; Online point map	Ch. 12	
4/18	Client/server model and peer-to-peer model	Fu Ch. 3	Quiz 2 due
4/25	Geospatial mashup and Google map	Fu Ch. 4	Final Project Proposal due
5/2	Google map mashups	Ch. 10 & Ch. 14	
5/9	Review & Q/A		Final Project due