

Syllabus - Slocum and Li

GEOG 319/658 Mapping and Analysis in the Cloud

Instructors: Terry Slocum and Xingong Li

Semester: Fall 2014

Class time: MW 3:00-4:15 PM

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Office Hours: Slocum (TR 9:15-10:45 AM and by Appt.)

Li (MW 1:15-2:45 PM and by Appt.)

Course Description

This course covers a broad range of approaches for visualizing and analyzing spatial data via the Web and associated cloud computing. Ultimately, the goal is to enable students to develop their own web mapping and analysis applications. An important element of this is the creation of map and analysis mashups, in which students utilize tools and data from multiple online sources to create web mapping and analysis applications.

Learning Outcomes

The goals of the course are to:

- 1) Learn how to use various programming languages to create Web mapping and analysis applications. We will focus on html and JavaScript.
- 2) Learn how to use application programming interfaces (APIs). We will focus on Google Map's API.
- 3) Learn how to create various web applications for visualizing spatial data.
- 4) Learn how to create various web applications for analyzing spatial data.

Students with Disabilities

The Academic Achievement and Access Center (AAAC) coordinates academic accommodations and services for all eligible KU students with disabilities. If you have a disability for which you wish to request accommodations and have not contacted the AAAC, please do so as soon as soon as possible. They are located in 22 Strong Hall and can be reached at 785-864-4064 (V/TTY). Information about their services can be found at <http://www.disability.ku.edu> . Please contact me privately in regard to your needs in this course.

Academic Misconduct

Copying, plagiarism, or other academic misconduct at any time during the semester will not be tolerated. Please be aware that the University's policy on academic misconduct can be found in Article II, Section 6 of the University Senate Rules and Regulations. See <http://policy.ku.edu/governance/USRR#art2sect6> .

Grading

Your grade in the course will be based on classroom attendance and participation (10 %), a set of approximately 10 exercises that will deal primarily with approaches for programming Web applications for visualizing and analyzing spatial data (70%), and a final project in which you develop a web-based application of your choosing (20%). A one- to two-page description of your plans for the final project will be due on November 7. As we approach the November 7 deadline, we will set up some class time to discuss potential topics for the final projects. Also feel free to schedule a meeting with the two of us to discuss plans for your final project. We will be expecting a more substantial project from those who are taking the class at the 658 level. Students will be required to make an in-class presentation of their final project during the last week of classes. The term paper and code for the project will be due on Thursday, December 18; a digital version of all materials will be required.

We will use the +/- grading system.

Storage for Data and Maps

Since we will be making use of the microcomputers in room 310 Lindley, we recommend that you acquire a USB flash drive (or other storage device) appropriate for backing up maps and data stored on these microcomputers.

Blackboard

We will use Blackboard for some things in the class (e.g., e-mail, distributing copies of course notes, and distributing grades). You can access blackboard at <http://www.blackboard.ku.edu> .

Required Text

Peterson, Michael P. 2014. *Mapping in the Cloud* . New York: The Guilford Press.

Potential Textbooks

Fu, Pinde and Sun, Jiulin. 2011. *Web GIS: Principles and Applications* . Redlands, CA: ESRI Press.

Muehlenhaus, Ian. 2014. *Web Cartography: Map Design for Interactive and Mobile Devices* . Boca Raton, FL: CRC Press.

Yang, Chaowei and Huang, Qunying. 2014. *Spatial Cloud Computing: A Practical Approach* . Boca Raton, FL: CRC Press.

Readings on reserve in Anschutz Library

Peterson: Chapter 9

Introducing Map Mashups Peterson: Chapter 10

Exercise #6: Introducing Map Mashups

Points and Point Data Peterson: Chapter 11

Point Maps and Graduated Symbols Peterson: Chapter 12

Exercise #7: Creating Point and Graduated Symbol Maps

Line and Area Mashups Peterson: Chapter 14

Exercise #8: Creating Line Mashups

Exercise #9: Creating Area Mashups

Animated Mapping Peterson: Chapters 21 and 22

Exercise #10: Animated Mapping

Databases, MySQL, and PHP Peterson: Chapter 17

Mapping from a Database Peterson: Chapter 18

Google Earth Engine API [Online Webinar](#)

Time did not permit covering the following topics:

Map Layers and GIS Peterson: Chapter 15

Map Layer Mashups Peterson: Chapter 16

Concepts in Online Mapping Peterson: Chapter 13

Mobile Mapping Peterson: Chapter 19

Local Mapping Peterson: Chapter 20

Analysis in the Cloud Yang and Huang: Chapters 2, 3

Virtual reality in the Cloud [Oculus Rift](#)