

GTECH 78517 – Free and Open Source GIS

Spring 2015

Mondays, 5:35 – 8:15 PM

Place of Instruction:	HN 1090B-2 (small geography computer lab)
Credits/hours:	3/3
Instructor:	Carsten Kessler, carsten.kessler@hunter.cuny.edu
Office Hours:	Tuesdays 3 – 5 PM
Office:	HN 1025A
Prerequisites:	GTECH 709 – Introduction to Geographic Information Systems (GTECH 732 – Advanced GIS and/or GTECH 731 – Computer Programming for Geographic Applications are recommended, but not required.)

Course Description

This course on Free and Open Source GIS (FISS GIS) is targeted at students who already have some experience working with ArcGIS and want to learn about alternative software packages. It will contrast FOSS GIS with commercial GIS offerings, discussing the advantages and disadvantages. The course will introduce desktop GIS (QGIS), spatial databases (PostGIS), web mapping solutions (MapServer, GeoServer, CartoDB, leaflet), as well as geostatistics (R) and scripting (Python, GEOS) solutions from the FOSS world. The weekly sessions will consist of a lecture part and a hands-on lab part, where students solve a problem using one (or several) of the above-mentioned tools. In the second half of the semester, students will work on a final project that requires the combination of the tools introduced to solve a real-world problem. Students are encouraged to use their own laptops during this class in order to familiarize themselves with the setup process of the software packages introduced. Note that it is *not* required to bring a laptop; all software will also be available on the lab computers.

Textbook

There is no required textbook for this class, since the textbooks that exist are quickly outdated and cannot keep up with the release of new versions of the software we will be using. Instead, readings will be provided on specific topics, and we will be working with the documentation and tutorials for the software packages introduced in class.

Learning Objectives

By the end of the course it is expected that students will be familiar with the landscape of free and open source GIS. They will have an understanding of the functionality provided by the software packages introduced and they will know about their particular strengths and typical application areas. Students will be able to combine these different tools in scripts and be prepared them for using these in actual projects.

Criteria for evaluation

Weekly labs	40%
Final project	30%
Midterm	20%
Participation in class	10%

Policy on Incomplete (IN) and Credit/No-Credit (CR/NC) grades

A final grade of IN (incomplete) will not be given except under the most extraordinary, and documented, circumstances. CR/NC is not available to students enrolled in GTECH 78517 or any other graduate-level course in the Hunter College School of Arts & Sciences.

Course Policies

Communication

Email messages about this course will include GTECH 78517 in the subject line and be signed with your full name.

Participation

Attendance is crucial. Assuming that the class-learning environment is active learning, adherence to protocols and the course timetable is very important. Lateness in arriving at class will not be tolerated. Class participation includes timely attendance and participation in class discussions, accomplishments of in-class tasks, preparation of the reading assignments, and completion of the lab assignments.

Hunter College Policy on Academic Integrity

Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing the CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures.

ADA Policy

In compliance with the American Disability Act of 1990 (ADA) and with Section 504 of the Rehabilitation Act of 1973, Hunter College is committed to ensuring educational parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (Emotional, Medical, Physical, and/or Learning) consult the Office of AccessABILITY, located in Room E1214B, to secure necessary academic accommodations. For further information and assistance, please call: (212) 772-4857 or (212) 650-3230.

Tentative Schedule

This syllabus is subject to updates. Changes will be announced on Blackboard.

<i>Week</i>	<i>Date</i>	<i>Topic</i>
1	Feb 2	Introduction to Open Source and FOSS GIS
2	Feb 9	Basic concepts, getting started, introduction to QGIS
	<i>Feb 16</i>	<i>No class – Presidents' Day</i>
3	Feb 18 (Wed!)	Data management in QGIS
4	Feb 23	Introduction to PostGIS
5	Mar 2	Data formats and conversion
6	Mar 9	Getting started with R
7	Mar 16	Visualizing, summarizing, and analyzing spatial data in R
8	Mar 23	Midterm
9	Mar 30	Exploring CartoDB
	<i>Apr 6</i>	<i>No class – spring recess</i>
10	Apr 13	Getting started with Python
11	Apr 20	Geospatial Data in Python
12	Apr 27	Web services, GeoServer, MapServer
13	May 4	Web mapping and Leaflet.js
14	May 11	Transitioning to FOSS
15	May 18	Final project presentations