GTECH 70900 - Introduction to GIS
Fall 2017
Monday, 5:35 to 9:25 PM
Hunter North 1090B-2

Instructor: Angelika Winner
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Office location: 1032 HN (Geography Adjunct Office)
Office hours: Monday 4:30-5:30PM

Goal/Rationale:

We will cover the whole GIS production process from data modeling and acquisition to editing, analysis, and cartographic output. GTECH 709 addresses students from both geography and other disciplines. Lecture examples, as well as hands-on exercises cover a range of application areas. The course itself is divided into two equally important parts: lectures, which introduce the concepts underlying all GIS, and lab exercises, which help you to familiarize yourself with many aspects of several software packages. The laboratory sessions will start at a very basic level, requiring little more than file handling and basic manipulation of Excel data. The course utilizes a variety of resources, including a lot of **online** materials that students are expected to peruse both before and after each week's class meeting times.

- *Goals*: This course is an introduction to GIS in general. We will be using a variety of **online**, web-based and desktop GIS in your lab assignments but the lectures concentrate on general principles and will note software-specific exceptions were applicable.
- *Objectives*: You learn to see GIS as a process from conceptualizing spatial problems to different representations of spatial data, data sources, data organization, vector and raster analysis, and map production.
- *Outcomes*: By the end of this course, you will be able to work independently with GIS, determine what is easy to do with GIS, what will take you considerable amounts of time, and which spatial research questions do not lend themselves to a GIS solution.

Textbooks: required: ***none***.

Recommended:

- Albrecht, J 2007. Key Concepts and Techniques in GIS. London: Sage. ISBN 978-1412910163
- de Smith M, Goodchild, M and P Longley 2016. Geospatial Analysis. Leicester: Winchelsea Press. Free access at http://www.spatialanalysisonline.com/ or as Amazon Kindle ebook (no ISBN).
- QGIS 2016. A Gentle Introduction to GIS. Free (like the software) and available online at http://docs.qgis.org/testing/en/docs/gentle_gis_introduction/
- Rowlings B 2015. Spatial Cheatsheet
- Maantay, J.A. and Ziegler, John 2006. GIS for the urban environment. Redlands, Ca: ESRI Press. ISBN 978-1589480827

Pre-requisite: Basic computer and numerical literacy is expected; i.e., you should be able to work with zip archives and be fluent in the use of files and folders. You should also have no doubt about the difference between the use and purpose of a data versus an executable program file.

Policies:

Attendance is crucial and adherence to protocols and the course timetable is very important. The class-learning environment is *active learning*, meaning that most of the student performance is practical assignments rather than tests. Class participation includes timely attendance at laboratory sessions, and participation in BlackBoard discussion fora. One unexcused absence will be accepted but I highly recommend that you attend all sessions if it is reasonably possible. Any consecutive unexcused absence will result in a 5-point reduction from your final grade.

Web-enhancement in the context of this course means that everything pertaining to this course will be communicated through BlackBoard. You are required to check the BlackBoard course site regularly. All changes to the syllabus will be announced on the course home page. All lecture and lab materials are accessible through BlackBoard, and this is also the place where you upload your assignments to. Your exams and lab assignments will be graded based on what you have uploaded to BlackBoard and this is where you will find your grades and may access course statistics that help you to assess your standing at any given time.

Assignments are always posted with their respective due date. It is in your best interests to keep up with the work and meet deadlines for assignments. Incomplete grades are not an option for this course. There are no "extra-credit" assignments. You will submit assignments in electronic form, and I will accept one late lab assignment – every consecutive late submission will lead to a 5-point reduction of your assignment grade per day late.

Syllabus change policy: Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice. All changes will/would be announced on BlackBoard.

All email messages about this course should include GTECH 709 in the subject line, and be signed with your full name.

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. *Academic dishonesty* (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) is simply not acceptable. Helping other students on use of the software is, however, encouraged.

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

Special accommodations for persons with disabilities are provided upon request. Please see the instructor if you feel the need for them.

Hunter College Policy on Sexual Misconduct

In compliance with the CUNY Policy on Sexual Misconduct, Hunter College affirms the prohibition of any sexual

misconduct, which includes sexual violence, sexual harassment, and gender-based harassment retaliation against students, employees, or visitors, as well as certain intimate relationship. Students who have experienced any form of sexual violence on or off campus (including CUNY-sponsored trips and events) are entitled to the rights outlined in the Bill of Rights for Hunter College.

a) Sexual Violence: Students are strongly encouraged to immediately report the incident by calling 911, contacting NYPD Special Victims Division Hotline (646-610-7272) or their local police precinct, on contacting the College's Public Safety Office (212-772-4444)
b) All Other Forms of Sexual Misconduct: Students are also encouraged to contact the College's Title IX Campus Coordinator, Dean John Rose (jtrose@hunter.cuny.edu or 212-650-3262) of Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complimentary services through the Counseling and Wellness Services Office, Hunter East 1123.

CUNY Policy on Sexual Misconduct Link: http://www.cuny.edu/about/administration/offices/la/Policy-on-Sexual-Misconduct-12-1-14-with-links.pdf

Criteria for evaluation:
Evaluation of academic performance is based on your lab exercises, your software project and your participation according to the following breakdown:

Weekly quizzes	15%
Lab exercises	43%
Midterm exam	10%
Final exam	15%
Project	17%

Table 1: Grading rubric for lab assignments for labs requiring a map layout. For labs without layout your grade will only be based on content.

	Unsatisfactory (0)	**Fair (50)**	**Good (80)**	**Excellent (100)**
Content (50%)	Data not visible; calculations, derived fields, or analyses improperly done; no demonstration of understanding; no submission.	Correct data not properly displayed or easily visible; calculations, derived fields, and analyses mostly improperly done.	Correct data displayed and visible; calculations, derived fields, and analyses mostly properly done	Correct data displayed and visible; calculations, derived fields, and analyses properly done
Cartography (25%)	Proper cartographic technique not followed; no submission.	Most cartographic elements present and properly displayed; layout lacks clarity.	All cartographic elements present and mostly properly displayed; layout is mostly clear and understandable.	All cartographic elements present and properly displayed; layout is clear and understandable.
Aesthetics (25%)	No submission or otherwise unacceptable / unreadable.	Messy, confused, or unbalanced.	Mostly pleasing and balanced aesthetics.	Good use of space with pleasing and balanced aesthetics.

Numeric scores will be used throughout the semester. The course letter grade will be determined only at the end of the semester.

Course Structure

Our Monday evening classes will consist of (a) a review of the scheduled lecture material, (b) a Q&A session to clarify any remaining doubts about the theoretical material of the week, (c) a break, and (d) about two hours of lab time, where you work at your own pace through the lab exercise. After each weekly session, you are expected to work through a quiz covering the materials from lecture. The quizzes are available on BlackBoard

and the due dates/times are listed in the course schedule on the next page. You should plan to spend on average some ***ten*** hours a week working on GTECH 70900-related material

Each student conducts an individual project that involves GIS analysis of a substantial geographical problem. There are no requirements with respect to what software the student uses. In a similar vein, the application area (field) is to be chosen by the student, who is also responsible for gathering the necessary data. Basically, you can choose whatever topic you want, provided it has to do with *geographical analysis*; the stress is on both words! It is your responsibility to find a suitable project, which will have to be accepted by the instructor.

A brief proposal summary will be due on October 9th – this should include a brief description of your project as well as potential data you are likely to need for your project. This should be no more than one paragraph. A more detailed proposal will be due after the midterm on November 6th where you should discuss your research project, your research questions and objectives as well as the data with sources you will need to answer your question(s) – one to two pages should suffice here.

I will not accommodate students who are late in their project work or do not show up for the project presentation. And, unless you produce a medical certificate or letter from the Office of AccessABILITY, I will not give the final grade of IN (incomplete).

Tentative Schedule

Date:	Session	Lecture Topics	Lab Topics	Due Dates
Aug. 28	1	Introduction; semester overview; The opportunities of GIS	Lab 0: Testing your Computer Skills	
Sep. 4	**No class – Labor Day**			
Sep. 11	2	Principles of GIS	Lab 1: First steps with ArcGIS Online	Lab 0 due
Sep. 18	3	GIS data formats	Lab 2: First steps with Quantum GIS	Lab 1 due Quiz 1 due @ 5:30 PM
Sep. 25	4	Data input; where to find data;	Lab 3: Joining data with Quantum GIS	Lab 2 due Quiz 2 due @ 5:30 PM
Oct. 2	5	US Census data and mapping;	Lab 4 Extra Credit: Introduction to CartoDB Due at 4/21/17	Lab 3 due Quiz 3 due @ 5:30 PM
Oct. 9	6	Address matching and georeferences;	Lab 5: Introduction to ArcCatalog	**Project Proposal Summary Due** Quiz 4 due @ 5:30 PM
Oct. 16	7	Organizing data in geospatial databases;	Lab 5 Cont.	Quiz 5 due @ 5:30 PM
Oct. 23	8	Setting up a GIS project; Review Midterm	Lab 5 Cont.	**Start Availability of Midterm Exam on BB @ 9:30 PM**
Oct. 30	9	Projections and	Lab 6: Introduction	Lab 5 due

		coordinate systems;	to ArcMap	**End Availability of Midterm Exam on BB @ 5:30 PM**
Nov. 6	10	Basic GIS analysis operations;	Lab 7: Spatial selection with ArcMap	Lab 6 Due Quiz 6 due @ 5: 30 PM **Project Proposal Due**
Nov. 13		NO CLASS- Spring Break	NO CLASS- Spring Break	
Nov. 20	11	Geoprocessing and modeling;	Lab 8: Geoprocessing with ArcMap	Lab 7 due; Lab 4 due Quiz 7 due @ 5:30 PM
Nov. 27	12	Getting started with raster-based GIS analysis;	Lab 9: Choice of ArcMap or SAGA GIS	Lab 8 due Quiz 8 due @ 5:30 PM
Dec. 4	13	Designing maps with GIS;	Lab 10: Choice of ArcGIS Online, ArcMap, or Quantum GIS	Lab 9 due
Dec. 11	14	Project work	Project work	Lab 10 due
Dec. 18	15	**Project Presentations**	**Project Presentations**	Project Submission

The project presentation will be on the day of the final during class time. The final exam will be online and will become available when the final exam period starts (12/14) and will have to be submitted at the latest by 12/20 @ 11:00 PM.