GTECH 20100

Introduction to Geographic Information Science

Spring 2018

Lecture: Monday and Wednesday 5:35 PM – 6:45 PM in Hunter North 1090B
Lab: Monday and Wednesday 7:05 PM – 8:25 PM in Hunter North 1090B
Instructor: Manju Adikesavan
Office Hour: Monday and Wednesday 5:00 to 5:30 PM
Email: manjuaishwarya@gmail.com

Course Overview:

The general theme of this course could be entitled Geography, the relationship game. Geography is very much about relationships and in this course, we will establish a scientific framework for reasoning about relationships such as spatial coincidence, distance, vicinity, scale, geometry and attributes, geographic features and their representation on a map, etc. Hand-in-hand with each of the relationships, you will learn how to apply your knowledge using geographic information system tools.

Goals: Familiarize students with a set of spatial concepts and tools to implement them.

Objectives: Abstraction of everyday geographic observations to put them to use in a spatial decision-making context.

Outcomes: By the end of this course, you should have a good understanding of different types of geographic data and how they can be analyzed using geographic information systems. GTECH 20100 forms the basis for a row of other GTECH courses that cover the range from cartography to advanced GIS applications. GTECH 20100 is a required course because the skill set you acquire here will serve you well in all jobs related to geography and environmental studies.

Required Textbook:

None – all reading will be on BlackBoard.

Pre-requisites:

GEOG 10100 or 15000; MATH 10100.**Policies:**

Attendance is crucial. Given that the class learning environment is active learning, meaning that most of the student performance is practical assignments rather than tests, adherence to protocols and the course timetable is very important. Active involvement in the course is evidenced, in part, by undertaking the practical assignments systematically, and learning the

tools through hours of practice. In so doing the tools soon come to be a means to an end, rather than the end itself. For example, you will make many maps, and may get caught up in this creative activity, but remember that the maps are being made for scientific purposes. Class participation includes timely attendance at laboratory sessions, participation in organized class discussions, completion of in-class tasks, and accomplishment of assignments on time. Of course, you are expected to behave respectfully towards the instructor and the other students, by not imposing a dominating or threatening presence in conversations and discussions, and by allowing others to speak and be heard, especially if they are shy and their voice weaker than yours.

Assignments are due one week after they are given in class. It is in your best interests to keep up with the work and meet deadlines for assignments. Incomplete grades and time extensions are not an option for this course. Unless otherwise instructed, you will submit assignments in electronic form.

Electronic recording devices are allowed during lectures. All other personal electronics should be turned off before coming into the classroom. This includes cell and smart phones.

Computers may be used for taking notes only, and if you use them for activities not related to classroom content (e-mail, Facebook chats, surfing the Net…), you will be asked gently, but firmly, to turn them off.

Lab policies are described in detail in http://www.geo.hunter.cuny.edu/techsupport/rules.html.

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 daily. All changes to the syllabus will be announced on BlackBoard. 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.

All email messages about this course should include GTECH 20100 in the subject line, and be signed with your full name as it appears in CUNYfirst. Any email with question about assignments, projects and exams will be answered within 24 hours (or as soon as I see it).

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. Plagiarism, dishonesty, or cheating in any portion of the work required for this course will be punished to the full extent allowed according to Hunter College regulations.

Academic dishonesty 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

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, which you are expected to check daily.

Criteria for Evaluation:

Evaluation of your performance is measured in theory and practice. The theory part is covered in the midterm and final exam. GIS can only be learned by doing. Hence some 50% of the course grade is based on lab exercises and a final studio project. Active participation is an essential learning tool and hence encouraged by allowing for 5% of the course grade.

Ideally, all can have 100 points! Final evaluation will be based on the following breakdown:

Evaluation	**Grade %**	**Due Date**
11 lab exercises	33%	Each lab assignment is due before the next one starts
Individual studio project	17%	Starting on March 19 – presenting on May 14 and 16
Midterm exam	20%	March 19, 2018
Final exam (cumulative)	20%	May 23, 2018
Quizzes	5%	Throughout the semester
Participation	5%	Throughout the semester

All exams and projects must be taken and completed. In special cases, duly justified (medical reasons), a make-up exam may be offered and scheduled at the instructor's convenience. But this will remain on a specific-case basis. You are expected to take the exams as they are scheduled. The final grade from a 100% will be assigned as a letter grade based on the numerical standards found in the Hunter College Undergraduate Catalogue. I will not accommodate students who are late in their work or do not show up for the final exam. And, unless you produce a medical certificate or letter from the Office of AccessABILITY, I will not give the final grade of IN (incomplete).

Course Schedule:

Week	Date	Day	Topic
1	Jan-29	M	Lecture 1: Getting started; semester overview Lab0: Introduction to lab assignments; Working with Excel spreadsheets
	Jan-31	W	Lecture 2: Mathematical Foundations Lab 1: Thinking geographically - mathematical reasoning and problem solving
2	Feb-05	M	Lecture 3: Geography as context Lab 1: Thinking geographically - mathematical reasoning and problem solving
	Feb-07	W	Lecture 4: Presenting data and ideas, portfolio development - Part I Lab 2: Presenting data and ideas
3	**Feb-12**	**M**	**Lincoln's Birthday - College is closed**
	Feb-14	W	Lecture 5: Presenting data and ideas, portfolio development - Part II Lab 2: Presenting data and ideas
4	**Feb-19**	**M**	**President's Day – College is closed**
	Feb-20	T	Classes follow Monday schedule; Lecture 6: Principles of GIS - Part I Lab 3: First Steps with ArcGIS Online
	Feb-21	W	Lecture 7: Principles of GIS - Part II Lab 3: First Steps with ArcGIS Online
5	Feb-26	M	Lecture 8: US Census data and mapping - Part I Lab 4: Accessing and displaying Census data with Quantum GIS
	Feb-28	W	Lecture 9: US Census data and mapping - Part II Lab 4: Accessing and displaying Census data with Quantum GIS
6	**Mar-05**	**M**	**QUIZ # 1**; Lecture 10: Form shape files to databases - Part I Lab 5: Interrogating NYC'S datamine with Carto
	Mar-07	W	Lecture 11: Form shape files to databases - Part II Lab 5: Interrogating NYC'S datamine with Carto
7	Mar-12	M	Lecture 12: Data input, where to find data Lab: 6 Organize a geographic database with ArcCatalog
	Mar-14	W	Lecture 13: Midterm exam preparation Lab: 6 Organize a geographic database with ArcCatalog
8	**Mar-19**	**M**	**Midterm exam** **Studio proposals due**
	Mar-21	W	Lecture 14: Projections and reference systems Lab 7: Comparing map projections in ArcMap
9	Mar-26	M	Lecture 15: Setting up a GIS project Lab 7: Comparing map projections in ArcMap
	Mar-28	W	Lecture 16: Basic GIS analysis operations - Part I Lab 8: Getting started with GIS analysis
	Apr -02	**M**	**Spring Recess; No class**
	Apr -04	**W**	**Spring Recess; No class**

9	Apr -09	M	Lecture 17: Basic GIS analysis operations - Part II Lab 8: Getting started with GIS analysis
	Apr -11	**W**	**Classes follow Friday schedule; No class**
10	**Apr -16**	**M**	**QUIZ #2;** Lecture 18: Geoprocessing - Part I Lab 9: Geoprocessing
	Apr -18	W	Lecture 19: Geoprocessing - Part II Lab 9: Geoprocessing
11	Apr -23	M	Lecture 20: Introduction to raster GIS - Part I Lab 10: Working with raster data (ArcGIS)
	Apr -25	W	Lecture 21: Introduction to raster GIS - Part II Lab 10: Working with raster data (ArcGIS)
12	Apr -30	M	Lecture 22: Map Design - Part I Lab 11: Basic mapping with ArcGIS
	May-02	W	Lecture 23: Map Design - Part II Lab 11: Basic mapping with ArcGIS
13	May-07	M	Lecture 24: GIS & Society - Part I Lab: Studio
	May-09	W	Lecture 25: GIS & Society - Part II Lab: Studio
14	May-14	M	Lecture 26: Exam preparation Studio presentation
	May-16	W	Lecture 27: Exam preparation Studio presentation
15	**May-23** May-24	**W** Th	**Final Exam - 5:35 PM to 8:05 PM** End of Spring Term