

## Introduction to Geographic Information Science

GTECH 20100 - 01

Tuesday/Friday 10:00-11:15 am (lecture) and

11:30-12:45 pm (1L01 lab) or 1:00-2:15 pm (1L02 lab) – No switching lab sections

Thomas Hunter Hall 405 (lecture)

North Bldg 1090B-2 (both labs)

### General Information:

Instructors: Geoffrey Fouad (lecture) and Rosy George (lab)

Email: [geoffrey.fouad@hunter.cuny.edu](mailto:geoffrey.fouad@hunter.cuny.edu) and [rosy.george83@myhunter.cuny.edu](mailto:rosy.george83@myhunter.cuny.edu)

Office hours: Thursday 10:00-1:00 pm in North Bldg 1044 (Fouad) and by appointment (George)

### Meeting Information:

Classes are in person. **If you do not attend, you will not receive help out of class time.**

### Course Description:

A survey in the scientific application of geographic information systems (GIS) and its use in the advancement of your career in the geographic and environmental sciences.

**Prerequisites:** GEOG 10100 or 15000; MATH 10100

**Course Goals:** You learn how to:

- (1) Apply GIS for spatial inquiries.
- (2) Differentiate and use different forms of geographic data for scientific investigations.
- (3) Reason spatially in a way which advances your career goals.

### Required Material:

*Brightspace*

- The course is administered at <https://brightspace.cuny.edu/>

*Selected reading*

- Supplied by Brightspace for broader context of lectures and labs (there is no textbook)

*ArcGIS Pro*

- Available in Windows computer labs and for personal use on your own Windows computer following instructions at:

[http://www.geo.hunter.cuny.edu/techsupport/arcgis\\_dvd.html](http://www.geo.hunter.cuny.edu/techsupport/arcgis_dvd.html)

### Grading:

Labs	Due the week after we work on the lab	50% (9 at 10% each*)
Quizzes	Due the same time as labs	10% (10 at 1% each)
Exams	Due in class	20% (2 at 10% each)

\*Top five labs applied for final grade

*Project assignments*

Proposal	May 2	2.5%
Progress report	May 9	2.5%
Presentation	May 13	5%
Poster	May 16	10%

For your final grades, minus grades (e.g., B–) are not applied, but plus grades (e.g., B+) are according to:

<https://hunter-undergraduate.catalog.cuny.edu/policies-and-requirements/academic-requirements/grading-policies/grading-definition>

**Late assignments are not accepted because you have a week to complete them following each class.**

**If you need an extension, the excuse with documentation should be sent prior to the due date.**

**No assignments accepted after May 16.**

Group work: You are encouraged to work collaboratively in groups to complete any of the following assignments, but you need to complete the work yourself and submit your own files (i.e., please no copy-pasting from each other).

### *Labs*

- Hands-on assignments (nine total) each following a different theme in spatial data management and inquiry whereby you prepare yourself for exams and your project in which you ideally apply what is learned in lab to your project (i.e., connect the two). Labs are due the Friday of the week after they are assigned (i.e., you have in excess of a week to complete them). The first lab is assigned starting in the second week of class

### *Quizzes*

- Open-book, formative assessment (ten total) to gauge your engagement with each class including five multiple-choice questions to be submitted the Friday of the week after the relevant subject matter is discussed in class (i.e., you have in excess of a week to complete each quiz). Quizzes start in the second week of class like labs (see above)

### *Exams*

- Summative assessment in two parts examining your (1) conceptual knowledge and (2) hands-on expertise in the scientific application of GIS delivered in two exams on what we cover in weeks prior to each exam (not cumulative). Conceptual questions may be in a variety of formats (e.g., multiple choice or short answer), and hands-on questions emulate that which you practice in labs. Exams are to be completed without instructor assistance using resources available to you (i.e., they are open book)

### *Project (see project guide for more details)*

You build your project as follows:

- Proposal: Summarize how you will use GIS and what data sources you will use
- Progress report: Have you downloaded your data, do you know how to use it, and what is your plan for completing your GIS project over the last week of class? In responding to these questions, you receive precise feedback on how to complete your project
- Presentation: With as few words as possible on slides, and as many graphics as possible (GIS is a visual medium), present to us the problem you investigated and your findings
- Poster: Again, with the idea that GIS is a visual medium, present in scientific poster format the graphics that convey your central arguments using as few words as possible to explain the problem you investigated and what you found

**Academic Integrity:**

Academic dishonesty (e.g., plagiarism) is a serious offense in regards to academic integrity which defeats the purpose of a college education. As such, this course enforces the “CUNY Policy on Academic Integrity” and applies Hunter’s procedures of “Academic Integrity.”

**Accommodations:**

In compliance with the American Disability Act, Hunter College is committed to ensuring educational parity and accommodations for students with documented disabilities and/or medical conditions. It is recommended that students with documented disabilities (e.g., emotional or physical) consult the Office of AccessABILITY to secure necessary academic accommodations (see <https://hunter.cuny.edu/students/health-wellness/accessibility/>).

**Sexual Misconduct:**

Sexual misconduct, and more broadly harassment of any variety, is not tolerated, and will be referred to the appropriate compliance office for review. You are urged to refer misconduct to Hunter’s Title IX Campus Coordinator, Dean John Rose ([john.rose@hunter.cuny.edu](mailto:john.rose@hunter.cuny.edu)), or see <https://www.hunter.cuny.edu/diversityandcompliance/title-ix>, and seek complimentary (free) assistance at <https://hunter.cuny.edu/students/health-wellness/counseling-and-wellness-services/>.

**Diversity, equity, inclusion, and pronouns:**

We live in a diverse world in which our diversity should be celebrated. Please notify me of your correct pronouns, and understand that our classroom is an inclusive environment where each of us can come together to learn.

**Class Policies:** The following policies are in place to help you learn.

- (1) Do not copy-paste from classmates (you will not learn doing this)
- (2) During class time, let’s focus and limit distractions of any kind
- (3) Please be on time and treat others respectfully
- (4) Complete reading before class (this will help you finish assignments faster)
- (5) Study actively (e.g., ask/answer your own questions)

**Schedule:** This schedule is subject to change.

Class	Subject	Reading	Deadlines
1/28 1/31	Introduction	Mark, Ch 1	<b>Drop</b>
2/4 2/7	Spatial data	Bolstad, Ch 2	
2/11 2/14	Coordinate systems	Bolstad, Ch 3	
2/18 2/21	<b>No class</b> Census data	GIS&T BoK	
2/25 2/28	Census data (continued) Selecting features	SLCC	
3/4 3/7	Selecting features (continued) Classifying data	Esri	

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<b>Class</b>	<b>Subject</b>	<b>Reading</b>	<b>Deadlines</b>
3/11 3/14	<b>Exam (conceptual)</b> <b>Exam (hands-on)</b>		
3/18 3/21	Vector overlay	GIS&T BoK	
3/25 3/28	Raster analysis	GIS&T BoK	
4/1 4/4	Data sources and editing	Fang et al.	<b>Withdraw</b>
4/8 4/11	Field data collection Site selection	Daly et al. Okeyinka et al.	
4/12-20	<b>No class</b>		
4/22 4/25	<b>Exam (conceptual)</b> <b>Exam (hands-on)</b>		
4/29 5/2	Project development	Research articles	<b>Proposal</b>
5/6 5/9	Project work	Research articles	<b>Progress report</b>
5/13 5/16	<b>Presentations</b> Poster work day		<b>Poster</b>