GTECH 71000
Concepts and Theories in Geoinformatics
Spring 2025
Thursday, 5:35 – 8:25 PM

Instructor: Sean C. Ahearn   **Classroom**: 1004 N
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Course Description

GTECH 71000 introduces the theoretical foundations for GeoInformatics as well as important concepts and research frontiers in the field. It does not have a corresponding lab section as the practical applications of the concepts taught here are covered in GTECH 70900 and GTECH 73200. Each week, based on a reading list and an overview lecture, one or two students will make a presentation on the week's topic, organize and lead a discussion session. The presentations will be assigned during the first week. Moreover, there will be a weekly reading assignment, for which each student has to turn in a one-page short review and three questions for discussion in the class.

Textbooks

There are no required textbooks for this class. Instead, we will be reading and discussing seminal literature on the respective topics. Detailed information about the literature will be provided at the course site on Blackboard at least one week before the lecture.

Goals

The goal of GTECH 7100 is to introduce you to a range of scientific concepts and theoretical issues unpinning Geoinformatics and GIScience as opposed to GISystems. We'll also look at the emerging area of GeoAI.

Objectives

By the end of the course you are expected to be familiar with the core concepts of geography, GeoInformatics, and GIScience such as location, place, process, scale, and spatial autocorrelation. Moreover, you will learn about the theoretical foundations of tools such as spatial databases and geo web services. The preliminary goal of this course is to lay the theoretical and conceptual foundations for specialized GIS courses and to broaden your view in GeoInformatics.

Learning Outcomes

By the end of this course, you will be able to
- Define and describe the key concepts in GeoInformatics;
- Identify fundamental theories and major development trends in GeoInformatics;
- Search, read, and analyze important journal articles in GeoInformatics and GIScience;
- Evaluate, critique, and reconcile research works in GeoInformatics and GIScience.

Pre-/Corequisites

GTECH 70900 – Introduction to Geographic Information Systems (or concurrent)

Criteria for evaluation

Final evaluation will be based on the following breakdown:

Abstracts and questions	30%
Presentation	30%
Participation	20%
Final	20%

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 71000.

Course Policies

Electronics in the classroom
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 (personal e-mails, Facebook chats, surfing the Internet…), you will be asked gently, but firmly, to turn them off.

Course Website
Web-enhancement in the context of this course means that everything pertaining to this course will be communicated through <u>BlackBoard</u>. You are required to check the BlackBoard course site on a daily basis. All changes to the syllabus will be announced on the course home page. All lecture materials are accessible through <u>BlackBoard</u>, and BlackBoard is also the place where you upload your assignments. Your exams and other 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.

Communication
All email messages about this course should include GTECH 71000 in the subject line and be signed with your full name as it appears in CUNYfirst.

Participation
Attendance is crucial. Assuming that the class-learning environment is active learning, adherence to protocols and the course timetable is very important. Class participation includes timely attendance and participation in organized class discussions, accomplishments of in-class tasks, and preparation of the reading 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.

Hunter College Policy on Sexual Misconduct

In compliance with the CUNY Policy on Sexual Misconduct, Hunter College reaffirms 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 relationships. 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, or 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) or Colleen Barry (colfeen.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:llwww.cuny.edu/about!administrationloffices/Ja/Policv-on-SexualMisconduct-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. This syllabus is subject to updates. Changes will be announced in class and on BrightaSpace, which you are expected to check regularly during the semester.

Tentative Schedule

Week	Session	Date	Topic
1	0	01/29/25	Class Intro
2	1	02/06/25	Introduction to GeoInformatics
3	2	02/13/25	Foundational Concepts in GeoInformatics
4	3	02/20/25	Geospatial Data Capture and Acquisition
5	4	02/27/25	Spatial Databases and Spatial Data Infrastructure
6	5	03/13/25	Programming and Development
7	6	03/20/25	Geospatial & Temporal Analytics and Modeling
8	7	03/27/25	Geocomputation
9	8	04/03/25	Domain Specific Applications
10	9	04/10/25	Cartography and Geovisualization
11	10	04/17/25	Spatial Data Science
12	11	04/24/25	GeoAI
13	12	05/01/25	Project Management and Professional Development
14	13	05/08/25	Summary