Concepts and Theories in Geoinformatics

Fall 2022

HN 1090B-2, Wednesday, 5:30 – 8:20 PM

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Office Hours: M, W 4-5pm

Course Description

In this course, we will explore the theoretical and conceptual foundations of GISystems, GIScience, and GeoInformatics. Most of the concepts are practiced and applied in GTECH 70900, a co-requisite for this course, as well as other GTECH courses. This course does not have lab sections as the practical application of the concepts discussed here will be covered in the labs of relevant GTECH courses. The course adopts a mode of *collaborative learning* and *participatory knowledge production*. In each week/session, we will collaboratively study a theoretical topic by each writing a review of a paper/book chapter. During the lecture, we will present, evaluate, and discuss the reviews. Then, one or two students will synthesize the topic based on the reviews and discussions, with at least one summary table and a conceptual chart. To streamline the process, we will learn to use a bibliography management tool (Endnote), a cloud-based document editing tool (Office 365), and an open-source graphing tool (Inkscape). This synthesized topic could be part of your final paper.

Textbook

There is no *required* textbook for this class. Instead, we will be reading and discussing seminal papers on the respective topics.

Course Learning Outcomes

GTECH 71000 introduces the scientific concepts and theoretical issues unpinning Geoinformatics and GIScience. The course *covers* some of 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 Geocomputation and spatial databases, for example. The preliminary goal of this course is to lay the theoretical and conceptual foundations for specialized GTECH courses and to broaden your view in GeoInformatics.

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

Pre-/Corequisites

GTECH 70900 – Introduction to Geographic Information Systems

Tentative Schedule

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 Blackboard, which you are expected to check regularly during the semester.

Week	Session	Date	Topic
1	1	8/31/2022	Introduction and Definitions of Geoinformatics
2	2	9/7/2022	Foundational Concepts of Geoinformatics
3	3	9/14/2022	Data Capture and Acquisition
4	4	9/21/2022	Design Aspects
5	5	9/28/2022	Programming and Application Development
6		10/5/2022	***No Class Scheduled***
7	6	10/12/2022	Computing Platforms
8	7	10/19/2022	Analytics and Modeling
9	8	10/26/2022	Geocomputation
10	9	11/2/2022	Cartography and Visualization
11	10	11/9/2022	Domain-Specific Applications
12	11	11/16/2022	***Exam***
13	12	11/23/2022	GIS Industry and Project Management
14	13	11/30/2022	Broader Societal Concerns and Implications
15	14	12/7/2022	Review and Q/A
16		12/14/2022	***Reading Day***
17	15	12/21/2022	Final Paper Due

Criteria for evaluation

Final evaluation will be based on the following breakdown:

Weekly Reading Reviews	30%
Participation	20%
Exam	20%
Final Paper	30%

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.

Course Policies

Course Website

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 on a daily basis. 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.

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 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 Utrose@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://www.cuny.edu/about!administrationloffices/Ja/Policv-on-SexualMisconduct-12-1-14-with-links.pdf