Spring 2016
EES 76500, Urban Application of GIS, [30495]
H: M, 5:35-8:15 p.m., Rm., HN-1090B
Prof. Hongmian Gong

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Course Goals and Objectives

This course will discuss the data, methodologies, and examples of using GIS to solve urban problems in economic, transportation, social, planning, and environmental settings. Although most of the lab exercises in the class are about other cities in the U.S., examples from New York are provided based on the research of the instructor. We will explore the use of GPS for travel survey in New York City, applying Central Place Theory to library service research in New York City, and defining urban area in the New York metro region using satellite imagery.

The course will use ArcGIS 10.x as the main software, with one lab using ENVI.

Students are expected to use what they learn from the labs and the examples to conduct small research projects addressing real world urban issues.

Prerequisite

GTECH 201 for GTECH 385.01; GTECH 709 (GISystems) or equivalent for GTECH 785.01 and

Required Text

Richard P. Greene & James B. Pick, *Exploring the Urban Community: A GIS Approach, 2nd Edition.* Upper Saddle River, NJ: Pearson Prentice Hall, 2012. ISBN: 9780321751591 (Paperback) or ISBN-13: 9780321709721 (E-Book)

Course Evaluation

Grade will be based on the following Criteria:

Labs	40%
Exam	20%
Project paper and presentation	40%

Notes:
1. Each student is required to do an urban-related research project at the end of the semester, using the GIS techniques taught in the course. The data should be real, not hypothetical (some real data are available from the instructor). Undergraduate students are expected to hand in a 5-page (double spaced) paper and graduate students a 10-page (double spaced) paper outlining the data, methodology, conclusion, and significance of their projects.

2. A late lab or paper will be marked down by 10% each day.

3. Class attendance is mandatory. Missing more than three classes in a semester, regardless the reasons, will adversely affect your grade. Students are responsible for obtaining any information presented in class during an absence.

4. No incomplete (IN) is given as a grade unless it is under the most extraordinary, and documented, circumstances. To request IN as a grade, you must contact the instructor by the final exam date and complete a Contract to Resolve Incomplete Grades.

5. Credit/No Credit (CR/NC) as a final course grade is available to undergraduate students only. To receive CR/NC you must have completed all of the course requirements (labs, exam, project, etc.) and have submitted the CR/NC form to the instructor before the final exam.

Course Content and Tentative Schedule

Week 1 Introduction

Week 2 Urban Transportation (Lab: GPS for urban travel survey in New York City)

Dynamics of Metropolitan Areas (Chapter 1 Lab: Metropolitan change in the U. S.)

Week 3 Census Geography (Chapter 2 Lab: Defining a metropolitan statistical area)

Industrial Location (Chapter 8 Lab: Location quotients for industries in Chicago)

Week 4 Internal Structure of Cities (Chapter 3 lab: Squatter settlements in Mexico City)

Systems of Cities (Chapter 4 Lab: China's urban rank change)

Week 5 Chapter 3 Regression Lab in ArcGIS

Urban Expansion (Chapter 9 Lab: Concentric ring analysis of Sprawl in Chicago)

Week 6: Lab: Defining urban area in New York metro region using satellite imagery

Week 7: Lab: Public library use in New York City

Week 8 Migration and Residential Mobility (Chapter 6 Lab: Gravity model and site selection for an education center)

Segregation (Chapter 7 Lab: Centrographic methods)

Week 9: Course Project

Week 10: Lab: Measuring urban sprawl using nighttime imagery

Week 11: Neighborhoods (Chapter 5 Lab: Measuring neighborhood change with Markov chains)

Environmental problems (Chapter 10: Air pollution and Asthma in Chicago)

Week 12: Urban and Regional Planning (Chapter 11 Lab: Forecasting growth impacts of a new cellular phone plant)

Week 13: Course Project

Week 14 (May): Presentations

Week 15 (May): Exam

Email Policy

Students should check the Announcements section in Blackboard, the lab instructions for that week, and the course syllabus before emailing the instructor. Content of the emails is limited to what cannot be waited until the next class or office hour. Emails are generally replied to within one business day and no later than two business days. Remember to include the course title in the subject line and sign your full name as it appears in CUNYFirst.

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.

Syllabus Change Policy

Except for changes that substantially affect implementation of the evaluation (grading) criteria, this syllabus is a guide for the course and is subject to change with advance notice. Any changes made to the syllabus will be announced in the class and/or posted in Blackboard under Announcements.