# GTECH 20100
# Introduction to Geographic Information Science
# Spring 2017

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| **Lab:** | Monday, 5:35 PM – 8:25 PM in Hunter North 1090B-2 |
| **Lecture:** | Wednesday, 5:35 PM – 8:25 PM in Hunter North 1021 |
| **Instructor:** | Mariana Schroter, HN 1032 |
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| **Email:** | marianaschroter@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 to be studied, 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. For those, who need the security blanket of a textbook, we will discuss half a dozen optional ones during the first session.
**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. I will be on time. So you will also be on time. It's just common courtesy. Lateness in arriving at class, both lectures and laboratory/discussion sections will not be tolerated. Active involvement in the course is evidenced in part by undertaking the mechanics of the practical assignments systematically, and learning the tools by hours of practice. In so doing the tools soon come to be seen as 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, accomplishments of in-class tasks, accomplishment of the preliminary assignment on time, and participation in the map poster display (if this is a part of the course this semester). Remember that a good part of your grade depends on class participation. 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.

*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.

*The following paragraph may change as the course material may move to a library-based content management system. Announcements and grades will still be posted on* BlackBoard.
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.

*All email messages* about this course should include GTECH 201 in the subject line, and be signed with your full name.

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

*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. There are no "extra-credit" assignments. Unless otherwise instructed, you will submit assignments in electronic form.

*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 on a daily basis.

**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 group studio project. Active participation is an essential learning tool and hence encouraged by allowing for 10% of the course grade.
Ideally, all can have 100 points! Final evaluation will be based on the following breakdown:

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| 11 lab exercises | 33%; each lab assignment is due before the next one starts |
| Midterm exam | 20% on 29 March |
| Individual studio project | 17% starting no later than 20 April (see schedule beneath) |
| Final exam (cumulative) | 20% on 22 May |
| Quizzes | 10%; throughout the semester |

**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**

Special accommodations for persons with disabilities are provided upon request. Please see the instructor if you feel the need for them. 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

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).

**Schedule**

| Week # | Date | Weekday | Topic |
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| 1 | Jan-30 | M | Lecture 1: Getting Started, semester overview; mathematical foundations |
| | Feb-01 | W | Lecture 2: Geography as context |
| 2 | Feb-06 | M | Lab 1: Thinking geographically - Mathematical reasoning and problem solving |
| | Feb-08 | W | Lecture 3: Presenting data and ideas, portfolio development |
| 3 | Feb-13 | M | Lincoln's Birthday - No class - College is closed |
| | Feb-15 | W | Classes follow a Monday schedule. Lab 2: Presenting data and ideas |
| | Feb-20 | M | President's day  - No class - College is closed |
| | Feb-22 | W | Lecture 4: Principles of GIS |
| 4 | Feb-27 | M | Lab 3: First Steps with ArcGIS Online |
| | Mar-01 | W | Lecture 5: US Census data and mapping |
| 5 | Mar-06 | M | Lab 4: Accessing and displaying Census data with Quantum GIS |
| | Mar-08 | W | Lecture 6: Form shapefiles to databases |
| 6 | Mar-13 | M | Lab 5: Interrogating NYC'S datamine with Carto |
| | Mar-15 | W | Lecture 7: Data input, where to find data |
| 7 | Mar-20 | M | Lab: 6 Organize a geographic database with ArcCatalog |
| | Mar-22 | W | Lecture 8: Setting up a GIS project, Exam Review |
| 8 | Mar-27 | M | Lecture 9: Midterm exam preparation |
| | Mar-29 | W | **Midterm exam** |

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| 9 | Apr-03 | M | Lab 7: Comparing map projections in ArcMap |
| | Apr-05 | W | Lecture 10: Projections and reference systems |
| | Apr-10 | M | Spring Recess |
| | Apr-12 | W | Spring Recess |
| | Apr-17 | M | Spring Recess |
| 10 | Apr-19 | W | Lecture 11: Basic GIS analysis operations |
| | Apr-20 | Th | Classes follow a Monday schedule. Lab 8: Getting started with GIS analysis |
| 11 | Apr-24 | M | Lab 9: Geoprocessing |
| | Apr-26 | W | Lecture 12: Geoprocessing |
| 12 | May-01 | M | Lab 10: Working with raster data (ArcGIS) |
| | May-03 | W | Lecture 13: Introduction to raster GIS |
| 13 | May-08 | M | Lab 11: Basic mapping with ArcGIS |
| | May-10 | W | Lecture 14: Final cartographic touches |
| 14 | May-15 | M | Studio presentation |
| | May-17 | W | Lecture 15: exam preparation |
| 15 | **May-24** | **W** | **Final Exam - 5:35 to 8:25 PM** |