

**GTECH 10100 Digital Earth**  
**Spring 2017**  
**Lecture: Wednesday 10am-11:15pm, HN1022**  
**Lab Wednesday 11:25pm-12:50 PM. HN-1001G**

**Contact Information**

<b>Instructor:</b>	Dr. Wenge Ni-Meister
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<b>Office hours</b>	Wednesday: 4:30pm-5:30pm or by appointment
<b>Department Information</b>	HN1006, Phone: 212-772-5265

**Prerequisites:** None

**Course Materials:**

**Introduction to Geospatial Technologies (3<sup>rd</sup> Edition)** by Bradley A. Shellito, Macmillan Learning, ISBN-10: 1-4641-8872-6; ISBN-13: 978-1-4641-8872-5 (**Required**).

**QGIS 2014. A Gentle Introduction to GIS (free):**

[http://docs.qgis.org/testing/en/docs/gentle\\_gis\\_introduction/](http://docs.qgis.org/testing/en/docs/gentle_gis_introduction/) (free) (Optional).

**Course Description:**

Welcome to the exciting world of “Digital Earth”, “a multi-resolution, three dimensional representation of the planet, into which we can embed vast quantities of geo-referenced data” by Al Gore (1998). The digital earth is a visionary concept for creating a digital representation of the Earth, or in another word a digital mirror world", storing and managing access to everything that is known about the planet (Grossner et al. 2008). This course primarily aims to familiarize students with the new suite of geospatial technologies and how they are being used to capture, store, process and display the vast amount of geospatial information about our planet and how this information helps us to better understand natural and cultural characteristics of the world, address world problems, and make sound decisions. Students will learn how satellites take complete photographs of the entire planet, Geographic Information Systems (GIS) display geospatial data, Global Positioning Systems (GPS) track the location of environmental and cultural phenomena, Geovisualization tools map our 3-D planet, and how these technologies are applied to solve problems in diverse fields and phenomena in the physical and social sciences in exciting ways. This course is intended to equip students with skills needed to locate, gather, and use geospatial data.

This course include both lecture and lab sections. The lab exercises enhance what is discussed in lectures.

**Learning Outcomes:**

At the end of this course, students will:

- Understand the basic concepts and uses of geospatial technologies to create a digital earth.
- Be excited about the new wave of geospatial technologies that can advance you toward a geotechnology-oriented career.
- Have acquired the basic skills used in remote sensing, GIS, GPS, and geovisualization tools.
- Know how to use geospatial knowledge to solve physical and social environmental science problems

## **Grading:**

Lab exercises/In-class Activities	50%
Final Map Project	20%
Quizzes	30%

**Lab exercises and in-class activities** will be handed and explained in class every one or two weeks. **Three Quizzes** will be given throughout the semester. They are mainly short-answer questions. **Final Project** includes your final project paper and project presentation to the class at the end of the semester. The students will make a map of their choice using the geospatial tools learned throughout the semester.

**You need to submit all the required work to BB. I do not take any submission by email.**

## **Grading Policy**

Grading will follow Hunter College policy as explained at <http://catalog.hunter.cuny.edu/content.php?catoid=22&navoid=2774> for graduate students and <http://catalog.hunter.cuny.edu/content.php?catoid=23&navoid=3507> for undergraduate students.

I do not give incompletes (IN) except under the most extraordinary, and documented, circumstances. You must contact me within 48 hours of the final exam and request IN as a grade. At that time you will schedule a date to meet with me at the college and complete a Contract to Resolve Incomplete Grades. Otherwise, I will average the grades I have for you and record the grade you have earned.

If you miss an exam, you must (1) contact me within 48 hours of the missed exam, (2) present acceptable documentary evidence for your absence, and (3) be available for the make-up exam (Note: there will be one make-up exam day at the end of the semester held outside of class for those eligible). A make-up exam covers the same material as the regular exam but will not be the same exam given as scheduled. (i.e. **DON'T MISS AN EXAM**).

## **Resources**

- All class material will be posted on Bb.

## **Essential Policy Information:**

- Attendance/lateness policy: I expect to see you 10am - 12:50pm Wednesday in HN1022 unless I receive acceptable documentary evidence for your absence ahead of time, otherwise you will be marked with missing a class.
- Late work/missed tests/Incompletes: The last day to receive the required lab work is May 17, 2017, unless I receive acceptable documentary evidence for your tardiness.
- Email Policy
  - Please use GTECH101- Digital Earth in the subject line when you email me. I do not answer email with insufficient subject lines
  - Please sign your full name as it appears in CUNYfirst to any message. I do not answer unsigned email messages.
  - Student's email will be responded to within 24 hours. Please note there will be a delay for messages sent over the weekend or during non-business hours.

## **Hunter College Statement 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 CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures. Plagiarism, dishonesty, or cheating in any portion of the work required for this course will be punished to the full extent allowed according to Hunter College regulations.

## **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) statement, this syllabus is a guide for the course and is subject to change with advance notice.
- Any changes will be updated through Bb.

## **Tentative Daily Schedule and Readings**

<b>Week</b>	<b>Date</b>	<b>Topics</b>	<b>Labs</b>	<b>Readings</b>
Week 1	Feb. 1	Introductory of Digital Earth/Geospatial Technologies	Google Earth/PSU	Ch 1
Week 2	Feb. 8	Geospatial Data – Scale, Datum and Map Projections	Google Earth/Google Maps	Ch 2
	Feb. 15	<b>Classes Follow a Monday Schedule</b>		
Week 3	Feb. 22	Geospatial Data – Coordinate Systems and Transformations	Coordinate Transformations	Ch 3
Week 4	Mar. 1	Finding Your Location with the Global Positioning System	GPS	Ch 4
Week 5	Mar. 8	<b>Quiz #1</b>	MIT App Inventor – I	Ch 9
Week 6	Mar. 15	Working with Digital Geospatial Data and GIS	Introduction to QGIS	Ch 5
Week 7	Mar. 22	Using GIS for Spatial Analysis	GIS Spatial Analysis	Ch 6
Week 8	Mar. 29	Using GIS to Make a Map	Making a Map	Ch 7
Week 9	Apr. 5	Getting There Quicker with Geospatial Technology	Geocoding and Find the Shortest Path	Ch 8
	Apr. 12	<b>Spring Break</b>		

Week 10	Apr. 19	<b>Quiz # 2</b>	MIT- App Inventor – II	
Week 11	Apr. 26	How Remote Sensing Works	Color Theory	Ch 9 & 10
Week 12	May 3	Image From Space	NASA Satellite Visualization in 3D	Ch 11
Week 13	May 10	Studying Earth's Climate and Environment from Space	Monitoring Environmental Changes	Ch12
Week 14	May 17	<b>Quiz #3</b>	MIT App Inventor - III	
Week 15	May 24	Final Map Presentation		