

# Spring 2017

## GTECH 73400 – GeoWeb Services

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When you communicate with me via mail, please use GTECH 73400 in your subject line and sign your full name as it appears in CUNYfirst.

**Prerequisites:** GTECH 73100

**Location:** The class will meet online, with group sessions scheduled for Tuesday evenings 6:00 to 8:00 PM following a weekly class schedule. A fast internet connection, a computer with a working webcam and microphone, free or low-cost subscriptions as needed to support the class (e.g., Google hangout, Amazon free tier cloud computers), and attendance at scheduled online meetings will be required for successful completion of the class.

### Course Description

In today's connected world, geographic problem-solving often involves some kind of distributed data processing and web-based visualization, which can present daunting technical challenges to GIS practitioners. This project-oriented class will provide you with experience solving geographic problems in the context of current web technologies. We will focus on techniques for developing geographic web applications that integrate spatial data analysis and data visualization using open source web software development methods.

The course will be conducted as a workshop divided into two major components: a group project, and an individual project. In the group project, you will participate in the full GIS web development process, from concept to system design to launch, each student taking ownership of a component of the larger system. Weekly updates and reviews will allow each student to benefit from other students' work. The conclusion of the group project will include a public code repository and documentation so the work can be shared with the broader GIS community. The individual projects will be shared similarly, with an individual research paper developed in tandem, in support of the individual project.

### Course Objective

The objective of this class is to provide you with the experience and skills necessary to integrate web technologies into your future work as a GIS professional. We will be focusing on web programming, which can be very useful for realizing the full potential of web technologies, regardless of whether or not you are involved with web development on a professional basis in the future. Each student should come away from the class not only armed with this understanding, but with two portfolio pieces that demonstrate and support this understanding.

### Expected Learning Outcomes

You will learn the fundamentals of internet software technologies and how to develop web GIS applications using currently popular open-source software development tools and methodologies.

Practice and fluency in developing both the backend and frontend components of web GIS mapping applications will also help you discover any areas of particular interest for future work or career development. Specific learning topics include how to:

- Visualize spatial data using web-based maps and other kinds of visualizations.
- Integrate these with diverse data sources using web technologies.
- Extract and publish spatial information from raw data sources.
- Evaluate and integrate existing open-source codebases.
- Write and manage code, especially JavaScript and Python.
- Develop and explain the ideas embodied in your code in written report form.

## Course Schedule

Week	Workshop Topic
<b>Group Project</b>	
1/31	Project overview and selection
2/7	Architecture research and proofs of concept
2/14	Paper prototype and scope due, final data preparation, task selection/assignment
2/21	Project development review 1
2/28	Project development review 2
3/7	Project development review 3
3/14	Code integration and repository setup, testing plan
3/21	Initial project launch, individual project proposal due with brief literature review
<b>Individual Projects</b>	
3/28	Architecture research and proofs of concept
4/4	Paper prototype and scope due, final data preparation
4/11	No Class
4/18	No Class
4/25	Project development review 1
5/2	Project development review 2
5/9	Project development review 3
5/16	Paper and code repository due
5/23	Project presentations

Please refer to the Hunter College registrar's site for important dates and deadlines.

## Grading

Grades will be based on participation in the group project (40%), the individual project (40%) the paper (10%) and overall class participation (10%).

## Essential Policy Information:

- Even though this is an online class, you may find the lab machines useful for your work. You are reminded that there is absolutely no eating or drinking in the computer lab, either during class or when working independently. You run the risk of having your departmental computer account suspended if you are caught eating or drinking in HN 1090B.

- You are expected to join the online sessions on time and to email me when online sessions will be missed.
- Late work– All assignments and the final project must be completed by the last class session to receive credit.
- Policy for extra credit – There is no extra credit.

### **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 Accessibility, 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**

This syllabus is a guide for the course and is subject to change with advance notice by email and/or class announcement.