Computer Programming for Geographic Applications
GTECH731 Section 1 Fall 2012
Tuesdays 5:35 p.m. - 8:15 p.m. and hours TBD
Room 1090B-HN (small lab)

Contact Information

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1023 Hunter North CARSI Lab
Office: 4-5PM Tuesday

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Materials

http://www.amazon.com/Python-Primer-ArcGIS%C2%AE-Nathan-Jennings/dp/146627459X


Supplemental readings will be circulated or posted as needed.

Description

Prerequisites (or co-requisite): GTECH 710 or equivalent
4 Credits

Effective GIS programming requires an ability to contend with a range of new and evolving technologies. This practical hands-on course introduces students to some of the main programming concepts and languages used today to deliver working GIS applications to end users. We begin with an introduction to the Python language, and explore it by writing desktop scripts to process GIS data. We look briefly at publishing this data using ArcGIS server, and spend the remainder of the course introducing the JavaScript language and creating interactive maps that integrate this data over the web.
The goal is to provide students with the programming tools needed to develop interactive maps from spatial data. These tools will help students make more complete use of spatial data in both academic and commercial endeavors. Students will learn the basics of how to approach problems from a programming perspective, how to write computer programs using the python language, and should develop an understanding of the role of Javascript in creating interactive maps. For assignments, students are encouraged to work with their own data and areas of interest consistent with the class topics.

Course Calendar and Content

The following course calendar is subject to change with notice. The exact number of assignments and class topics may be adjusted as the semester progresses.

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<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Readings / Assignments (due the week following)</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>Jennings chapter 1 and 2</td>
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<td>2</td>
<td>Python language 1</td>
<td>Jennings chapter 3</td>
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<tr>
<td>3</td>
<td>Python language 2</td>
<td>Assignment #1</td>
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<tr>
<td>4</td>
<td>Geoprocessing with Python 1</td>
<td>Jennings chapter 4</td>
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<td>5</td>
<td>Geoprocessing with Python 2</td>
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<td>6</td>
<td>Geoprocessing with Python 3</td>
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<td>7</td>
<td>Publishing data with ArcGIS server</td>
<td>Haverbeke chapter 1</td>
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<td>JavaScript language 1</td>
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<td>Javascript language 2</td>
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<td>10</td>
<td>Javascript language 3</td>
<td>Haverbeke chapters 3 and 4</td>
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<td>11</td>
<td>Web maps with JavaScript 1</td>
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<td>12</td>
<td>Web maps with JavaScript 2</td>
<td>Assignment #4</td>
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<td>13</td>
<td>Web maps with JavaScript 3</td>
<td>Skim Haverbeke chapters 10, 11, and 12</td>
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<td>14</td>
<td>Review and wrap-up</td>
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Important dates from http://registrar.hunter.cuny.edu; more details can be found there.

8/28  First class session.
9/7   Friday Last day to drop for 50% tuition refund
9/14  Friday Last Day to drop for 25% refund. Last day to dropped without a grade of “W”
9/15  Course withdrawal period begins (A grade of “W” is assigned to students who
      Officially dropped a class)
9/18  No class
9/25  No class
10/9  Last day to drop with the grade of “W”
12/14-21  Finals Week
Grading

Grades will be based on programming assignments, each of which will be expected to reflect original problem solving by each student. Each assignment will be graded based on the extent to which they reflect an understanding of the ideas and methods discussed, and the scope and effectiveness of the solutions presented. Each will count toward a uniform percentage of the grade, totaling 80%. Additionally, participation in the form of class attendance and shared ideas and questions will determine the remaining 20% of the grade.

Essential Policy Information:

- Attendance/lateness policy – students are expected to arrive on time and to provide notice to the instructor when classes will be missed.
- Late work/missed tests/Incompletes – Assignments are due one to two weeks following their assignment as announced in class. Late assignments will be marked down a half grade.
- Policy for extra credit – N/A
- Policy on the use of instructional technologies (e.g, Blackboard) – to be determined.
- Email Policy – most communication outside of class will be by email, and both students and instructor are expected to respond to emails within a few days.

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