URPL-GP 2618

Geography Systems and Analysis

Summer 2018

May 22, 2018 – June 27, 2018
Tue 6:00-9:00PM & Wed 6:00-8:00PM
Room TBD

Stephanie Rosoff, stephanie.rosoff@nyu.edu

Office Hours: 5:00-5:45pm Tuesdays and Wednesdays, and by appointment

Prerequisites:

There is no formal prerequisite for this class, but the course is very data intensive. Students are expected to know basic data management and manipulation.

Course Description:

Understanding geographic relationships between people, land use, and resources is fundamental to planning. Urban planners routinely use spatial analysis to inform decision-making. This course will introduce students to Geographic Information Systems (GIS), a tool to analyze and visualize spatial data. The course will emphasize the core functions of GIS: map making, data management, and spatial analysis. Students will learn cartographic best practices, how to find and create spatial data, spatial analysis methodology, and how to approach problem solving from a geographic perspective. Throughout the course, students will build a portfolio of professional quality maps and data visualizations.

Learning Objectives

By the end of the course students will:
1. Gain an understanding of what a GIS is and how GIS is used in planning and other fields;
2. Demonstrate fluency in the ESRI ArcGIS interface (the most commonly used GIS software package);
3. Create professional quality maps;
4. Source and manipulate geographic data;
5. Solve “spatial questions” using GIS.
Readings

The course revolves almost entirely around assigned lab activities, which are listed further below. Optional readings include:

*Getting to Know ArcGIS for Desktop*, 3rd edition or later, Michael Law and Amy Collins

*Mapping It Out*, Mark Monmonier

Software

Students wishing to install GIS software on their personal computers can receive a free educational license of ESRI ArcGIS 10.5 from NYU Data Services. Fill out this form to request a free copy: http://guides.nyu.edu/appointment.

Note: ESRI software only runs on Windows operating systems. Many NYU lab computers are equipped with ArcGIS. If you cannot install ArcGIS on your personal computer, you must plan to use NYU lab computers to complete the assignments and labs outside of class time.

*Students MUST use ESRI ArcGIS to complete lab and graded assignments.*

Data Storage

Recommended: Bring an external drive or USB flash drive to class (at least 64GB).

NYU Classes

All announcements and resources will be delivered through NYU Classes.

Academic Integrity

Academic integrity is a vital component of Wagner and NYU. Each student is required to sign and abide by Wagner’s Academic Code. Plagiarism of any form will not be tolerated since you have all signed an Academic Oath and are bound by the academic code of the school. Every student is expected to maintain academic integrity and is expected to report violations to me.

Consulting with classmates, peers, online GIS resources, and NYU Data Services is encouraged. All graded assignments, however, must be individually produced. It is perfectly acceptable for a classmate to help troubleshoot a difficult task but not acceptable to turn in an assignment using output generated by a classmate. If you are unsure about what is expected of you, ask.
Henry and Lucy Moses Center for Students with Disabilities at NYU

Academic accommodations are available for students with disabilities. Please visit the Moses Center for Students with Disabilities (CSD) website at www.nyu.edu/csd and click on the Reasonable Accommodations and How to Register tab or call or e-mail CSD at (212-998-4980 or mosescsd@nyu.edu) for information. Students who are requesting academic accommodations are strongly advised to reach out to the Moses Center as early as possible in the semester for assistance.
NYU’s **Policy on Religious Holidays**

University policy states that members of any religious group may, without penalty, absent themselves from classes when required in compliance with their religious obligations. Students do not need to ask the instructor for permission, but they may choose to notify faculty in advance of such an absence. Whenever feasible, assignment due dates will not be scheduled on religious holidays.

**Student Resources**

Wagner tutors are available to help students with their writing skills. Please see details on [https://wagner.nyu.edu/portal/students/academics/advisement/writing-center](https://wagner.nyu.edu/portal/students/academics/advisement/writing-center).

The web also has some good resources to help you write better. After you finish writing your paper but before you submit it, you can obtain automated readability statistics here: [https://igm.rit.edu/~jxs/services/TestReadability.html](https://igm.rit.edu/~jxs/services/TestReadability.html) and some additional feedback here: [http://writersdiet.com/test.php](http://writersdiet.com/test.php). Use these services to improve your prose.

For additional GIS support NYU Data Services offers a lab space in Bobst and is staffed with GIS consultants. See [https://guides.nyu.edu/dataservices](https://guides.nyu.edu/dataservices) for more information.

**Class Policies**

Extensions will be granted only in case of emergency. This policy is adopted out of respect to those who have abided by deadlines, despite equally hectic schedules. Assignments handed in late without pre-approved extensions will be penalized 5 point per day.

**Assignments and Evaluation**

Grades will be based on class attendance (10%), a Map Portfolio (30%), a Spatial Analysis memo (30%) and a Research Memo (30%).

**Class attendance** (10% of total grade) reflects the number of classes attended by students over the entire course. Students must attend 11 of the 12 classes before points are deducted.

The **Map Portfolio** (30%) is a series of four maps created using ArcGIS. The maps must tell a story about a neighborhood or place, or highlight a particular topic, and adhere to cartographic standards. The deliverables include (1) a single PDF document including a cover page, table of content, and four maps and (2) an excel workbook (template provided) with technical documentation for each map. **Due on June 6, 2018 @ 6pm. Post to the assignment folder on the course’s NYU Classes site.**
The Spatial Analysis Memo (30%) addresses a spatial research question. The analysis must executed in ArcGIS and utilize at least two geoprocessing tools. The deliverable is a 2-4 page memo (word document) detailing the research question, data, methodology, and results. Due on June 19, 2018 @6pm. Post to the assignment folder on the course’s NYU Classes site.

The Research Memo (30%) explores a geographically focused research question or topic. The memo must include a minimum of three maps and the analysis must utilize at least 3 geoprocessing tools. The subject can be oriented around a place or around an issue. The deliverables include a 7-10 page research memo (word document), which includes a technical notes section, and a class presentation (4-slide PDF). Presentation due June 27, 2018 @4pm. Memo due on July 1, 2018 by midnight. Post to the assignment folder on the course’s NYU Classes site.

All assignments should be written in Times New Roman size 12, double spaced lines, and one inch margins all around. Please include your name and page numbers. All figures and tables must be labeled. Maps saved as image files (e.g. JPEG) and inserted into a Word Doc must be high resolution. Adherence to these guidelines demonstrates professionalism and will affect your grade.

Learning Assessment Table

<table>
<thead>
<tr>
<th>Graded Assignment</th>
<th>Course Objective Covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Attendance</td>
<td>All</td>
</tr>
<tr>
<td>Map Portfolio</td>
<td>2 and 3</td>
</tr>
<tr>
<td>Spatial Analysis Memo</td>
<td>4</td>
</tr>
<tr>
<td>Research Memo</td>
<td>All</td>
</tr>
</tbody>
</table>

Grading Scale and Rubric

Individual grading rubrics will be provided for each graded assignment. The list below, however, describes the overall standards for each grade:

(A) Excellent: Unusually thorough, well-reasoned, creative, methodologically sophisticated, and well written. Numeric value=95-100 points.

(A-) Very good: Creative, thorough and well-reasoned, indicates strong understanding of appropriate methodological or analytical approaches, and meets professional standards. Numeric value=90-94 points.
(B+) Good: Well-reasoned and thorough, methodologically sound. This grade indicates the student has fully accomplished the basic objectives of the course. Numeric value=87-89 points.

(B) Adequate: Competent work for a graduate student even though some weaknesses are evident. Meets key course objectives but evidence suggests that understanding of some important issues is less than complete. Numeric value=84-86 points.

(B-) Borderline: Meets the minimal expectations for a graduate student in the course. Understanding of salient issues is somewhat incomplete. Numeric value=80-83 points.

(C/-+/) Deficient: Inadequately developed or flawed by numerous errors and misunderstanding of important issues. Methodological or analytical work performed is weak and fails to demonstrate knowledge or technical competence expected of graduate students. Numeric value = 70-79 points.

(F) Fail: Work fails to meet even minimal expectations for course credit for a graduate student. Performance has been consistently weak in methodology and understanding, with serious limits in many areas. Weaknesses or limits are pervasive. Numeric value = 0-69 points.

### Course Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Topic</th>
<th>Lab Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/22/2018</td>
<td>Intro to GIS</td>
<td>Explore ArcGIS</td>
</tr>
<tr>
<td>5/23/2018</td>
<td>Elements of map making</td>
<td>Reference Maps</td>
</tr>
<tr>
<td>5/29/2018</td>
<td>Linking and querying attribute data</td>
<td>Data Management; Map Projection; Thematic Maps</td>
</tr>
<tr>
<td>5/30/2018</td>
<td>Symbolizing geographic data</td>
<td>Thematic Maps, Cont.</td>
</tr>
<tr>
<td>6/5/2018</td>
<td>Cartographic generalization</td>
<td>Clip, Erase, Feature Types</td>
</tr>
<tr>
<td>6/6/2018</td>
<td>Linking and querying data by location</td>
<td>Overlay Analysis I</td>
</tr>
<tr>
<td><strong>Map Portfolio Due</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6/12/2018</td>
<td>Summarizing attributes across multiple geographic units</td>
<td>Overlay Analysis II</td>
</tr>
<tr>
<td>Date</td>
<td>Topic 1</td>
<td>Topic 2</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>6/13/2018</td>
<td>Measuring distance</td>
<td>Proximity Analysis</td>
</tr>
<tr>
<td>6/19/2018</td>
<td>Spatial Analysis</td>
<td>Geocoding; Digitizing and KML</td>
</tr>
<tr>
<td></td>
<td><strong>Memo Due</strong></td>
<td></td>
</tr>
<tr>
<td>6/20/2018</td>
<td>Raster Data</td>
<td>Raster Data</td>
</tr>
<tr>
<td>6/26/2018</td>
<td>Data Viz 101; Course wrap up</td>
<td>Open Lab</td>
</tr>
<tr>
<td>6/27/2018</td>
<td><strong>Research</strong></td>
<td>Class Presentations</td>
</tr>
<tr>
<td></td>
<td><strong>Presentation Due</strong></td>
<td></td>
</tr>
<tr>
<td>7/1/2018</td>
<td><strong>Research Memo Due</strong></td>
<td></td>
</tr>
</tbody>
</table>