PUBPOL 565 B: Topics in Urban Affairs—GIS and Public Policy

Syllabus, Winter 2018

Meetings 11:30 to 2:20 on Mondays
Mary Gates 295

Instructor **Mahesh Somashekhar**
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Course Webpage Available on Canvas

Contact For simple questions, email is the best way to reach me. I will respond to your messages within 72 hours. For more involved questions or discussions, please use my office hours.

Course Description and Objectives:

This course is a hands-on introduction to Geographic Information Science (GIS) and its application to public policy. Maps are a powerful tool for both describing and studying public policy issues that occur across space. Lectures will discuss the building blocks of effectively creating, analyzing, and presenting maps in policy settings, while lab work and assignments will introduce students to GIS software. Topics include but are not limited to understanding how maps can be used; creating and manipulating maps; working with spatial data sources; and conducting spatial analysis. Examples will come from a wide variety of policy settings, such as housing, public health, transportation, and the environment.

By the end of this course, students will:

- Gain a basic, practical understanding of GIS concepts, technical issues, and applications,
- Develop spatial and quantitative analysis skills to effectively study issues in a variety of public policy settings, and
- Understand the limitation of GIS and its social implications.

Prerequisites:

There are no prerequisites for this class. This is an introductory course, but it is helpful if you are familiar with Microsoft Excel or another spreadsheet program. You will be expected to hone your critical thinking, communication, and presentation skills as well. This course is designed to help you practice these abilities.

Required Software and Textbook:

The software we will use in the course is QGIS (http://www.qgis.org/en/site/). QGIS is a free, open-source alternative to ArcGIS, a similar piece of software commonly used for spatial analysis. QGIS is available for Windows, MacOS X, Linux, and Android platforms. Copies of the software will be available

in the Evans School Computer Lab, located in Parrington 124. You may find it helpful to use the software on your own personal computer, although it is unnecessary to succeed in the course.

For two reasons, there is no textbook for the course. First, an advantage of using free, open-source GIS software is that there is a wealth of free resources available online to help you learn QGIS. Perhaps the bible of using QGIS is the QGIS Training Manual (https://docs.qgis.org/2.18/en/docs/training_manual/); see also http://www.qgis.org/en/docs/index.html). If you prefer a bound book, a hard copy of the manual—*The Quantum GIS Training Manual* by Thiede, Sutton, and Duster—is available for purchase online and at various book stores. In addition to this manual, other helpful resources exist, some of which are forums that allow you to post a question and get an answer from experts fairly quickly:

https://www.qgis.org/en/site/forusers/support.html
http://gis.stackexchange.com/
http://www.qgistutorials.com/en/

I strongly recommend that you use these resources to enhance your GIS capabilities. I use them regularly. You are welcome to ask me questions throughout the duration of the course, but I will not be your teacher forever. Familiarizing yourself with the resources above ensures that you can continue to learn GIS after the course is over.

The second reason there is no textbook is because **the goal of the course goes beyond learning GIS**. Enough resources exist out there such that you could teach yourself GIS in a few weeks. This course is aimed at helping you understand how, when, and why to apply GIS to public policy issues, and your grade will be determined as much by your ability to use and learn GIS as it will be by your ability to think critically and apply GIS to effectively to address matters of policy.

Assignments and Grading:

Your course grade will be based on the following:

- **Final Project: A Policy Brief (60% of Your Total Grade)**
  For your final project, you must imagine that a large, prominent foundation has commissioned you to write a two page policy brief on a pressing issue that occurs spatially. You decide the topic and project you would like to work on, subject to my approval. Topics can include anything from how to address crime hot spots in Seattle to a water shortage in Bangladesh to the deployment of soldiers in the Middle East. Your policy brief must include at least two maps created in QGIS. Follow the policy brief template on the course website.

- **Four Homework Assignments (10% Each, For a Total of 40% of Your Total Grade)**
  Every two weeks, I will assign homework that requires the use of QGIS. Assignments will be due on the course website every other Wednesday at 9am. Send in both a write-up that answers the public policy questions of concern as well as the raw files that you used to create your maps. Late homework assignments will be accepted up to 2 days after the due date, and 20% will be deducted from your assignment grade for each day it is late. Homework that is more than 2 days late will not be accepted.

Academic Accommodations:

To request academic accommodations due to disability, please contact the Disability Resources for Students Office, 011 Mary Gates Hall, (206) 543-8924. I will be happy to provide academic accommodations if you have a letter requesting such from Disability Resources for Students. Please feel free to see me after class or during office hours to discuss this.

Things You Should Do To Succeed in This Class:

Because this course aims to help you apply GIS software to public policy issues, you should:

- Practice using GIS software beyond what we discuss in the class. Class lectures and examples are there to give you a foundation to think creatively about how to integrate GIS into policy analysis.
- Make clear to me in all your assignments that you realize GIS is there to serve public policy analysis rather than simply to make fancy maps.
- Turn in all assignments on time.
- Participate in all lectures. The hands-on examples of GIS we explore together during class time will be incredibly helpful to successfully complete all homework assignments.
- Throughout the course, recognize how GIS can enhance your career goals and consider this class as an opportunity to set yourself up to use GIS in your current or future endeavors.
- Finally, ASK QUESTIONS. If you are confused, the person sitting next to you probably is, too. You'll be doing yourself and the class a favor if you actively participate in classes.

Academic Honesty:

All students are expected to do their own work on all assignments and exams. Students representing the work of others as their own or cheating in any other way will receive a zero for the assignment in question and may fail the course or be referred to the university for disciplinary action.

Schedule of Topics and Required Readings:

All class formats will be as follows: 60 minutes of lecture; 15 minutes of break to set up student lab work; 95 minutes of hands-on learning by doing. From time to time, I reserve the right to change the format as needed to fit the goals of the course. This may include adding or deleting material as well as expanding or shrinking lecture time in favor of lab time.

Note that the dates listed below are subject to change. Changes will be announced in class and/or on the class website.

Dates	Topics	Due Dates and Notes
1/8	Introduction to GIS and the Science of Maps	*Homework #1 Due 1/17 at 9am on Course Website. AND…* *No Class Next Week (1/15)! MLK Day.*
1/22	Collecting, Viewing, and Understanding Spatial Data	*One-Paragraph Policy Brief Proposals Due 1/24 at 9am on Course Website. AND…* *Guest Lecturer Today: Matt Parsons, UW GIS Librarian*

1/29	Map Projections and Geo-Coding Data	*Homework #2 Due 1/31 at 9am on Course Website*
2/5	Editing Spatial Data & Elementary Spatial Statistics	
2/12	Web Integration	*Homework #3 Due 2/14 at 9am on Course Website. AND…* *No Class Next Week (2/19)! Presidents Day.*
2/26	Elementary Network Analysis & Some Principles of Good Map Design	*Homework #4 Due 2/28 at 9am on Course Website*
3/5	The Politics of Maps & Public Participation GIS (PPGIS)	*Guest Lecturer Today: Joe Hannah, UW Dept. of Geography*
3/12	**FINAL PROJECT DUE AT 9AM ON COURSE WEBSITE**	