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GEOG 352-4 (Q)
Fall 2017
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SPATIAL ANALYSIS

Course Outline

Course Description

In many decisions and observations in the real world, *spatial analysis* plays an important role. For example: expensive land is *concentrated* in the core of the city; we *explore* the campus map layout to find the *best route* to get to lectures; we know some diseases *cluster* in closed communities; and we are concerned about the *distribution* of point-source industrial pollutants in our environment. In each of these, we mentally process observations in space and time to arrive at an understanding. But this mental processing is inadequate for large volumes of data. We need to depend on spatial data analysis methods and GIS tools to support our planning and decision-making.

The course will be an integration of lectures, discussions and computer labs on various spatial analysis topics such as *exploratory spatial data analysis*, *point pattern analysis*, *cluster* and *factor analysis*, *spatial autocorrelation*, as well as *analysis of spatially continuous data* among others. The GIS software and geospatial data will be used for laboratory assignments to complement and reinforce theoretical concepts from the lectures.

Learning Objectives

On successful completion of the course, students should be able to:

- Demonstrate knowledge of spatial analysis methods
- Use GIS software for spatial data analysis and management
- Apply spatial analysis methods to solve problems in geography and related disciplines
- Pursue further advanced study in spatial analysis and modeling

Grading

The final grade for the course will be determined from the following: laboratory assignments (50%), quizzes (15%) and a final exam (35%). All marks in the course are absolute and not scaled or assigned based on a curve.

Recommended Textbook

McGrew, J.C., Lembo, A.J. and Monroe, C.B. (2014). *An Introduction to Statistical Problem Solving in Geography*. Waveland Press, Inc.

The textbook will be on reserve in the Bennett Library at the beginning of the term.

Lectures will begin on September 7th, labs will begin on September 12th, 2017.

This course may be applied towards the *SIS Certificate Program*.

The content of the course is subject to minor changes depending on the amount of students and available resources.