GEOG 5100 – Quantitative Geographical Methods

Instructor

Professor Desheng Liu
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Office Hours: Monday 11:00−12:00PM and Wed 12:30−1:30PM, or by appointment

Lectures

1116 Derby Hall, Wednesday 1:40PM−3:30PM

Labs

0140 Derby Hall, Monday 12:40PM−1:35PM

Course Website

The course schedule, announcements, lecture notes, homework and lab assignments, and other course information will be posted on Carmen (https://carmen.osu.edu).

Required Textbook

[R] Rogerson, P.A. (2010). *Statistical Methods for Geography*: *A Student's Guide* (*Third Edition*), Sage Publications, London.

Prerequisites

Statistics 1450 (145), or equivalent, or graduate standing in geography, or permission of the instructor.

Course Description and Objectives

This course will provide an introduction to fundamental methods used in quantitative geographic research. The emphasis will be on the statistical analysis of geographic data. The objectives are (1) to introduce students a range of fundamental quantitative approaches in geographic problem solving, (2) to present students real-world examples from a variety of topical areas in geography, and (3) to provide students a basis for understanding more advanced geographic data analysis methods.

Grading Policy

Your final course grade will be based on the following weighting of assessment components:

Class Exercises	15%
Homework	10%
Labs	25%
Midterm Exam	20%
Final Exam	30%

- Class exercises will be frequently given throughout the semester. They are designed to help you to understand the lecture notes and do well in exams. You will receive credits by showing your efforts in class but no make-ups will be given for your absence.
- All assignments (homework and labs) should be turned in on time. Late submissions will NOT be accepted. However, your lowest lab score will be dropped.
- Students must take all exams to receive credits. No make-up exams will be given unless legitimate documents for medical or personal emergency are presented **prior to** the exams.

Final course grades will be assigned based on the following grading scale:

A: 93–100 | **A-**: 90–92 | **B+**: 87–89 | **B**: 83–86 | **B-**: 80–82 | **C+**: 77–79

C: 73–76 | **C-**: 70–72 | **D+**: 67–69 | **D**: 60–66 | **F**: below 60

Student Responsibility

You are responsible for your own learning. I am here solely to facilitate your learning. I will help you as much as I can, but learning the material is ultimately up to you. This includes:

- Attending class meetings or getting assignments and notes from others if you miss class;
- Asking questions when you have them, either in class or out of class;
- Doing the assigned homework and labs on time and participating in class;
- Contacting me if you have difficulties.

Communication Devices

Cell phones and other communication devices must be either turned off or put on vibrate during class. Please refrain from texting during class as a courtesy to those sitting around you. All electronic devices other than a calculator must be shut off and put away during examinations.

Academic Misconduct

Please help maintain an academic environment of mutual respect and fair treatment. It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term academic misconduct includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest

practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). Academic misconduct will not be tolerated and will be dealt with procedurally in accordance with university policy, which is available at http://oaa.osu.edu/coam.html. The Code of Student Conduct can be found at http://studentaffairs.osu.edu/csc/.

Students with Disabilities

All students who feel they may need accommodations based on the impact of a disability should contact the instructor privately to discuss their specific needs. Students with documented disabilities must also contact the Office of Disability Services (ODS) in 150 Pomerene Hall (614-292-3307) to coordinate reasonable accommodations for the course. ODS forms must be given to your instructor as early in the semester as possible to be filled out and returned to you.

Receiving an 'I' for the Course

You cannot receive an incomplete for the course unless 70% of the work in the course has been completed. Extenuating circumstances will be handled on a case-by-case basis.

Course Schedule

A tentative course schedule is given below. Students should check the course website on Carmen frequently for updates.

Week	Topic	Readings
1	Introduction	[R] 1
2	Basic terms and notations	[R] Appendix B, C
3	Geographic data	[R] 1.7, 2.1
4	Descriptive statistics	[R] 2
5	Probability (I)	[R] 3
6	Probability (II)	[R] 4
7	Sampling	[R] 5.7
8	Estimation	[R] 5.1~5.2
Midterm Exam: Wednesday, Oct 15, In Class		
9	Hypothesis testing	[R] 5.3~5.6
10	Analysis of variance	[R] 6
11	Correlation	[R] 7
12	Regression	[R] 8, 9
13	Spatial pattern analysis	[R] 10
14	**Thanksgiving Break**	
15	Review	
Final Exam: Wednesday, Dec 17, 12:00PM −1:45PM		