

Geography 3210a
Quantitative Analysis in Geography
2014
The University of Western Ontario

Instructor: Dr. M.B. Green 2415 SSC, x85025 mbgreen@uwo.ca
Office hours: Tuesdays 1:00 to 2:30
Classroom and time: Lecture: Tuesdays 4:30-6:30, SSC-3028
Lab: 1425 SSC, 7:00-9:00

Teaching Assistant: TBA
2 lecture hours and 2 lab hours.

Course description: Simple parametric and nonparametric statistical methods through multiple regression are introduced. Exploratory data analysis techniques may be examined as a supplement to more traditional statistical methods. Geography specific techniques are also presented.

Goals: To gain knowledge regarding the nature of geographical data and the application of statistical techniques and computing systems to spatial analysis; models of spatial data, probability, distributions, hypothesis testing and correlations. What that means is that I want you to become comfortable with opening a medium level stats books and being able to follow the discussion of a technique well enough that you could apply it correctly.

Textbook: for the statistical portion of the course any statistical textbook would do, for the EDA portion, the ABCs of EDA at: <http://dSPACE.library.cornell.edu/handle/1813/62>, for general review see: <http://onlinestatbook.com/> hereafter called FreeStat, if you're looking for a free stats book check <http://bookboon.com/en/statistics-ebooks>.
A good quality nonprogrammable calculator is a necessity.

Policies

Evaluation: There will be 9 quizzes of no more than 30 minutes, each 8% of course mark, a final exam, 20% of course mark, and a maximum of seven laboratory assignments, 1.14% each.

The quizzes will consist of short answer questions and problem solving. Lab assignments will be assigned and introduced on the Tuesday the week before the week of the lab, and will be taken up in the following week's lab unless stated otherwise.

Labs must be stapled securely (I'm not responsible for missing pages!), and clearly labeled with your name, and student number. The lab marks are based on attendance (.5% each) and submission of lab assignments (.5% each). The lab submissions will not be graded but comments may be provided on an assignment.

Copies of the labs are available on this site, or in the textbook if so assigned. Lab exercises consist of a number of statistics problems on the lecture topics currently being covered. You are encouraged to work on labs in groups for the lab.

This does not mean copying labs but helping each other understand the material.

No labs will be accepted once they have been handed back in class.
In any case, the instructor must be notified of late assignments prior to the due date.

Statement on Academic Offences

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: <http://www.uwo.ca/univsec/handbook/appeals/scholoff.pdf>.

You should also note that any marks in the course are considered preliminary until you receive your final mark

from the Registrar. Adjustments of marks may be made before final submission to the Registrar. In addition you are expected to attend the lectures. You can't learn the material if you aren't there. If you have a cellular phone with you in class, TURN IT OFF!

General Information

The course is quantitative. Computations will be performed manually, using calculators, and with computers. IBM SPSS v21 will be the main computer program used in the course. You can use Excel if you want but it's not recommended. If you are unfamiliar with SPSS there are many tutorials available on the web. For example, <http://bookboon.com/en/stats-practically-short-and-simple-ebook>

The course material is cumulative; you will need to know last week's lecture in order to understand this week's lecture. Because of this you should review lectures and readings weekly; do not expect success if you only study and practice before exams. The course is also problem based, and applied; you must practice problems and do all of the exercises in order to fully understand the material and successfully complete the course.

If you are having problems, SPEAK UP! I am more than happy to help you with difficulties you are having in the course. This help is conditional upon you doing your job. That is, you should read the text or lab before you come to see me. The session is much more fruitful if you have tried to understand the material first. I will not redo a class lecture because you didn't attend. Please attend the lectures, it makes everyone's life much easier.

Antirequisites

All other senior level statistics courses numbered 2000 or above

Prerequisites

Geography 2210A/B or Biology 2244A/B or Statistical Sciences 2244A/B.

Prerequisite checking:

Unless you have the requisites or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

If you find that you do not have the course requisites, it is in your best interest to drop the course well before the end of the add/drop period. Your prompt attention to this matter will not only help protect your academic record, but will ensure that spaces become available for students who require the course in question for graduation.

Accommodation for Medical Illness

For UWO Policy on Accommodation for Medical Illness and a downloadable SMC see:

http://www.uwo.ca/univsec/handbook/appeals/accommodation_medical.pdf

Downloadable Student Medical Certificate (SMC): <https://studentservices.uwo.ca> under the Medical Documentation heading

Students seeking academic accommodation on medical grounds for any missed tests, exams, participation components and/or assignments worth 10% or more of their final grade must apply to the Academic Counseling office of their home Faculty and provide documentation. Academic accommodation cannot be granted by the instructor or department.

Statement on Use of Electronic Devices

Electronic devices may **not** be used during any portion of this course without the instructor's permission

Western's commitment to accessibility

The University of Western Ontario is committed to achieving barrier free accessibility for persons studying, visiting and

working at Western.

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

Code of conduct: Students in geography are expected to conduct themselves in a polite and civil manner. Students are reminded of the University Code of Conduct for Students: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

Outline

videos in italics

- Sept 9: Introduction, central tendency, stem and leaf displays, letter values,
readings: Chapters 1 and 2 of ABCs, FreeStat pgs 77-82, Lab 1: *What's statistics, stemplots, measures of center*
- Sept 16: primitives, distance, Readings: Chapter 3 of ABCs, FreeStat pgs 93-101, Quiz 1
- Sept 23: field camps
- Sept 30: box plots, χ^2 as a goodness of fit measure, types of means, Quiz 2, Lab 2: χ^2 , *Box plots*
FreeStat 1-way anova, http://onlinestatbook.com/2/chi_square/one-way.html
- Oct 7: inference for proportions, poisson distribution, Lab 3, *inference for proportions*
- Oct 14: smoothing, Quiz 3
- Oct 21: smoothing, runs test, reading: Chapter of ABCs, *runs test*
- Oct 28: 1-way ANOVA, *One-Way ANOVA*, Quiz 4
- Nov 4: Tukey HSD test, Readings: FreeStat 518-534
- Nov 11: Median polish, coded tables, Readings: Chapter 7 of ABCs, quiz 5, lab 6
- Nov 18: 2 way anova, Quiz 6, *Inference for Two-way Tables*
- Nov 25: bivariate regression, cluster analysis, Quiz 7, *Scatterplots, fitting lines to data, inference for regression*
- Dec 2: Multiple regression, Read: Basics of Regression, Quiz 8, lab 7
- Dec 9: Summary, Quiz 9