GEOG 2271: QUANTITATIVE METHODS IN GEOGRAPHY

Winter 2022

Instructor: Dr. Mitchell Taylor Remote Learning mktaylor@lakeheadu.ca

Meeting Schedule:

Labs	Monday, 2:30 – 4:00 pm
Lectures	Monday and Wednesday, 1:00-2:30 pm

Course Content:

The course introduces Geography majors to statistical methods. Topics include describing a distribution, discrete and continuous probability distributions, estimating means and proportions, hypothesis testing, linear regression, contingency tables and point pattern analysis. Time permitting, multiple regression and non-linear regression will be introduced. The application of statistics to geographical problems is emphasized. A more detailed schedule of the topics to be covered is described in the Course Materials Package.

Evaluation Scheme:

Assignments (11)	**30%**
Tests (2)	**30%**
Practical Lab Test	**10%**
Final Examination	**30%**

Please see the Course Materials Package for the schedule of assignments and examinations.

Required Materials

Course Text

Johnson and Kuby (2012). *STAT, 2nd ed*. Brooks/Cole.

Alternative Text

Rogerson, P (2010). *Statistical Methods for Geography: A Student's Guide, 3rd ed.* Sage Publications.

A good statistics textbook is an invaluable reference for this course and others you will take in the future. I can suggest other alternatives if the recommended texts are not to your liking.

Course Materials Package

The Course Materials Package contains a detailed course syllabus (lecture topics, recommended readings, dates for assignments and tests). The manual also comes with a beginner's guide to

SPSS, materials for in-class workshops, and review questions with answers. For convenient use, you may consider printing all or part of this package.

Other Supplies

- A pencil and eraser
- A calculator with scientific functions (factorials, logarithms, exponents)
- A memory stick is recommended for backing up work

Software

While some assignments should be completed with a calculator, others will be completed using two software packages: Microsoft Excel and SPSS. These are available for use in the ATAC computer labs, and versions of Microsoft Office 365 (which includes Excel) and IBM SPSS are **available for free** through the Helpdesk.

Course Delivery

In accordance with the safety protocols at Lakehead University during the pandemic of Winter 2022 This course will be delivered remotely using the **Desire2Learn (D2L)** platform. Course lectures and materials and evaluation materials will be delivered through the **Desire2Learn (D2L)** platform at MyCourselink. Lectures and labs may be done at any time, and scheduled class periods will be used to communicate individually with the instructor using the internet (mktaylor@lakeheadu.ca) and by phone (807) 964-2678.

Direct contact with the instructor is optional. All materials required to complete the course are available online or in your textbook. Students are responsible for keeping up with the class.

Assignments

Assignments for this course are included in this manual and may be completed at any time. The course schedule indicates the due dates and also the point at which we will have covered all of the necessary material in class (i.e., when you should get started). **Late assignments will be marked as 0% of the mark allocation.** If you believe you will require an extension, please make that request **in advance** of the deadline.

Expectations

To succeed in this course, *regular involvement is **essential***. During the pandemic protocols, I can understand that not everyone will be able to connect synchronously every time. I am willing and available to help students who have made the effort to review the lecture notes and recordings and still find they are struggling with a concept or technique. However, ***it is critical not to fall behind***. This is not a course that can be crammed at the last minute. It's very simple really. You will not be able to work the problems on the exams if you do not work the problems in the assignments and the labs. The course builds from simple principles and concepts to more complex principles and concepts. You will **not be required to memorize formulas**, but you will have to **understand** the principles they are based on to use them correctly.

Learning Outcomes

Knowledge

- Review common descriptive statistics and the appropriate usage of each
- Utilize probability theory to develop expected frequencies of events
- Utilize standard statistical approaches for making inferences from samples
- Design and test hypotheses using a variety of parametric and non-parametric techniques, including:
  - Student's *t* and χ^2 distributions
  - Differences between two samples
  - Linear regression
  - ANOVA
- Incorporate spatial information into quantitative analysis

Skill Development

- Application of statistical techniques to common geographical tasks
- Problem-solving and quantitative evaluations using mathematical skills
- Data models, analysis, and graphic representation using common statistical and spreadsheet software

LU Notice for Recording Lectures and Class Activities

In GEOG2271, in the context of remote instruction participation, video and audio recordings of class activities may be made to ensure students' and instructors' easy and comprehensive access to those activities. The recordings are confidential and are intended only for the use of the course students and instructors. They may otherwise not be used or disclosed. During recording, to protect others' privacy, each student should ensure that no one else is present in the location where they are being recorded without that non-student's consent. The recordings are made under the authority of sections 3 and 14 of The Lakehead University Act, 1965. Questions about the collection of the images and sounds in the recordings may be directed to the Dean of Science and Environmental Studies, ses@lakeheadu.ca.

LU Accommodation Statement

Lakehead University is committed to achieving full accessibility for persons with disabilities/medical conditions. Part of this commitment includes arranging academic accommodations for students with disabilities/medical conditions to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability/medical condition and think you may need accommodations, you are strongly encouraged to contact Student Accessibility Services (SAS) and register as early as possible. For more information, please email sas@lakeheadu.ca or visit https://www.lakeheadu.ca/faculty-and-staff/departments/services/sas.