

# GEOG\*2460-F24: ANALYSIS IN GEOGRAPHY

Course Outline (Provisional)

Fall 2024, 0.5 Credits

Department of Geography, Environment and Geomatics  
University of Guelph

---

## 1 Instructor

Ben DeVries  
HUTT-131, bdv@uoguelph.ca

## 2 Office Hours

TBA

## 3 Graduate Teaching Assistants

TBA

## 4 Prerequisite

0.50 credits at the 1000 or 2000 level in Geography

## 5 Course Description

This course will introduce analytical techniques commonly used in geography and other natural and social sciences. It will emphasize the use of quantitative information in geography, including data collection and analysis. Analytical procedures will include graphical presentation of data, descriptive statistics, application of probability and sampling theory, inferential statistics and spatial statistics. The course will focus on when and why these tools should be applied, how analytical procedures are conducted and the interpretation of the results. Computers and data analysis software will be used.

## 6 Learning Objectives

- To learn how to use quantitative tools for the description and analysis of geographic data;
- To develop and strengthen intuition about statistical methods;
- To develop critical analytical skills for the evaluation of geographic research; and
- To learn how to undertake statistical analyses using the R programming language.

## 7 Course Organization

Lectures for GEOG\*2460 are planned to be held in a face-to-face setting. All students are expected to take their own notes during lectures. Incomplete lecture notes (described below) will be provided to students guide with note-taking. Labs will be held in a face-to-face setting. Typical lab sessions begin with a short introduction by the graduate teaching assistant (GTA), including explanations of key concepts and announcements regarding due dates, etc.

## 8 Texts and Other Supplies

There is no required textbook for this course. Lecture notes will be posted to the Courselink site for this course in advance of each topic. The notes are written to accompany the lectures, but do not cover all the material that will be discussed in lectures. You are expected to supplement these notes with your own notes during lectures. Example problems, many of which are covered during lectures, are included in the lectures notes. Some of these problems will be left as optional exercises to students to help prepare for the midterm and final exams.

For students wishing to delve deeper into any of the subjects covered in this course, nearly any introductory statistics textbook will do, especially those with an emphasis on applications. One example of such a textbook is "Elementary Statistics for Geographers (3rd Edition)" by Burt, Barber and Rigby, Guilford Press, 2009.

The tests and final exams will include questions with a computation component. *Students will need to provide their own scientific calculator for use in in-person tests and exams.* Cell phones or other software calculators (e.g., via laptop) will not be allowed during exams. Labs will make use of free, open-source software, which has already been installed on lab computers. Download and installation instructions will be provided for any students who wish to work through labs on their personal computers.

## 9 Mark Breakdown

- Labs - 30%
- Test 1 - 15%
- Test 2 - 25%
- Final Exam - 30%

Students must obtain an overall average of at least 50% in the combined tests (2) and final exam to pass the course. Lab assignments are due at the beginning of the lab session one week after the lab has been assigned, except where otherwise indicated in Section 10 below. The late penalty for labs is 10% per day, so it is best to get them in on time! If you have a legitimate reason for an extension, you must contact your GTA and make arrangements for a new deadline before your assignment is due. The midterm and final exams may contain one or more questions related to materials covered in labs.

## 10 Course Schedule

The tentative weekly schedule for the course is shown below.

| Week | Start Date | Lecture Topic                     | Lab Topic                        | Lab Report Due |
|------|------------|-----------------------------------|----------------------------------|----------------|
| 1    | 2024-09-02 | Introduction to the course        | No labs                          |                |
| 2    | 2024-09-09 | Statistical analysis and sampling | Lab 0: Introduction to R/Rstudio |                |
| 3    | 2024-09-16 | Descriptive statistics            | Lab 1: Descriptive statistics    |                |
| 4    | 2024-09-23 | Probability                       | Lab 2: Descriptive statistics    | Lab 1          |
| 5    | 2024-09-30 | Confidence Intervals              | Lab 3: Probability distributions | Lab 2          |
| 6    | 2024-10-07 | Confidence Intervals, Test 1      | Lab 4: Confidence intervals      | Lab 3          |
| 7    | 2024-10-14 | Fall break; Hypothesis Tests      | No labs                          |                |
| 8    | 2024-10-21 | Hypothesis Tests; ANOVA           | Lab 5: Hypothesis tests          | Lab 4          |
| 9    | 2024-10-28 | ANOVA; Chi-squared Tests          | Lab 6: ANOVA                     | Lab 5          |
| 10   | 2024-11-05 | Chi-squared Tests; Test 2         | No labs                          |                |
| 11   | 2024-11-12 | Linear Regression                 | Lab 7: Chi-squared tests         | Lab 6          |
| 12   | 2024-11-19 | Linear Regression                 | Lab 8: Regression                | Lab 7          |
| 13   | 2024-11-26 | Logistic Regression               | No labs                          | Lab 8          |

## 11 Tests and Exams

There will be two term tests and one final exam in this course. The first term test (Test 1) will be held on **Thursday, October 10th**. The second term test (Test 2) will be held on **Thursday, November 8th**. Both tests will be closed-book, in person exams to be held during the regularly scheduled lecture period. There will be no lecture during those times. The Final Exam will be a closed-book exam, and the date, time and location will be announced . Please check WebAdvisor towards the end of the semester for updates on the location of the exam.

All term tests and final exam will be cumulative (they will cover content from the entire course). They are designed this way because of the cumulative nature of the material covered in this course. However, you can expect the content of the second term test and the final exam to emphasize material not already covered on a previous test. Since the labs follow lecture material closely, term tests and final exams may include some questions related to the labs.

## 12 Territorial Acknowledgements

We acknowledge that the University of Guelph resides on the ancestral lands of the Attawandaron people and more recently, the treaty lands and territory of the Mississaugas of the Credit. We

recognize the significance of the Dish with One Spoon Covenant to this land and offer our respect to our Anishinaabe, Haudenosaunee and Métis neighbours as we strive to strengthen our relationships with them. Today, this gathering place is home to many First Nations, Métis and Inuit peoples and acknowledging them reminds us of our important connection to this land where we learn and work.

## **13 Illness**

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g. final exam or major assignment).

## **14 COVID-19 Safety Protocols**

For information on current safety protocols, follow these links:

- <https://news.uoguelph.ca/return-to-campus/how-u-of-g-is-preparing-for-your-safe-return/>
- <https://news.uoguelph.ca/return-to-campus/spaces>

Please note, these guidelines may be updated as required in response to evolving University, Public Health or government directives.

## **15 Disclaimer**

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via CourseLink and/or class email. This includes on-campus scheduling during the semester, mid-terms and final examination schedules. All University-wide decisions will be posted on the COVID-19 website (<https://news.uoguelph.ca/2019-novel-coronavirus-information/>) and circulated by email.

## **16 E-mail Communication**

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

## **17 When You Cannot Meet a Course Requirement**

Late assignments will be assessed a penalty of 10% per day (not including weekends). After the assignment has been handed back to the class no grade can be assigned on late work. When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, student ID, and e-mail contact. See the undergraduate calendar for information on regulations and procedures for Academic Consideration.

## **18 Drop Date**

The last date to drop one-semester courses, without academic penalty, is Friday, December 1st. For regulations and procedures for Dropping Courses, see the Undergraduate Calendar.

## **19 Copies of out-of-class assignments**

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

## **20 Accessibility**

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Student Accessibility Services (SAS) as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email [csd@uoguelph.ca](mailto:csd@uoguelph.ca) or see the website.

## **21 Academic Misconduct**

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community — faculty, staff, and students — to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. An example of academic misconduct that might occur in this course is a student copying an answer or using a map/image from another student. Students must create their own digital files for computer-based exercises. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar.

## **22 Recording of Materials**

Presentations which are made in relation to course work, including lectures, cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

## **23 Resources**

The Academic Calendars are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma