

GEOG 4210A – Geocomputation

Course Outline: Section 001 Fall 2026

1. Course Information

*Details about design and delivery of the course are listed below in Section 6



Classes Start	Fall Reading Week	Classes End	Study day(s)	Exam Period
September 9	October 10-18	December 9	December 10	December 11-22

Thursday September 17, 2026: Last day to add a second-term half course

Wednesday September 30, 2026: National Day for Truth and Reconciliation (non-instructional day).

Monday October 12, 2026: Thanksgiving Holiday

Monday November 30, 2026: Last day to drop a first term half course without penalty



Course Instructor	Contact Information	Office Hours
Hui Jeong (Hailyee) Ha	hha24@uwo.ca	Tuesday 10-11 am
Teaching Assistant(s)	Contact Information	Office Hours
Kiaunna Lee	kiaunna.lee@uwo.ca	TBD



☒ Office hours will be held in person

2. Calendar Description

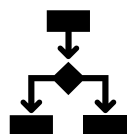
An introduction to multivariate statistics and data analysis using computational methods; reproducibility in data analysis, data presentation, exploratory data analysis, and data mining for Geography.

2 lecture hours, 2 laboratory hours, 0.5 course

Antirequisite(s): The former Geography 3210A/B.

Prerequisite(s): Geography and Environment 2210A/B or Biology 2244A/B or Statistical Sciences 2244A/B and enrolment in a geography program or permission from the instructor.

Prerequisite checking is the student's responsibility



Senate Regulations state, "unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will 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."

3. Textbook

☒ All resources will be posted in OWL



☒ Additional resources:

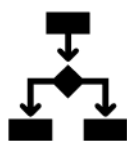
(Optional) Rogerson, P. A. (2015) Statistical Methods for Geography: A Student's Guide. SAGE Publications. Fourth Edition. pp 396. Paperback ISBN: 978-1446295731.

Textbook Website:

<https://study.sagepub.com/rogerson4e/student-resources/inferential-statistics>

4. Course Objectives and Format

Course Objectives:



- I. To develop a working knowledge of statistical concepts as applied to geographical data.
- II. To become competent in data visualization and exploratory (spatial) data analysis.
- III. To understand issues with performing statistical analysis on geographical data.
- IV. To learn new computational skills, specifically the statistical software R, along with RStudio.

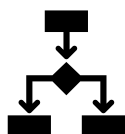
Although mathematical detail is not emphasized, competence in simple mathematical notation and arithmetic are fundamental. All computations will be performed using statistical software. The primary piece of software we will be using is R and RStudio.

Course Format:

Lectures: In person lectures, online videos, live tutorials, and readings

Labs: 2 hrs (In person delivery, demonstration and supported work time).

Expectations:



- Engagement with lecture and lab material is imperative to success in this course.
- The course material is cumulative.
- You should review lectures and readings weekly.
- It is the student's responsibility to cover any material missed by failure to attend lectures, please also see all material on the course website.
- Students must be organized, especially with computer files, please seek help if you are struggling with this component.

☒ Attendance is required

☒ Missed work should be completed in a timely manner

All course material will be posted to the new OWL Brightspace learning environment:
<https://westernu.brightspace.com/d2l/home>. Any changes will be indicated on the OWL site and discussed with the class.

Google Chrome or Mozilla Firefox are the preferred browsers to optimally use OWL; update your browsers frequently. Students interested in evaluating their internet speed, please click [here](#).

If students need assistance, they can seek support on the [OWL Brightspace Help page](#). Alternatively, they can contact the [Western Technology Services Helpdesk](#). They can be contacted by phone at 519-661-3800 or ext. 83800.

5. Course Content and Schedule

LECTURE CONTENT

Week	Dates	Topic	Readings
1	September 7	--	--
2	September 14	Course Overview	Ch. 1, Ch. 2
3	September 21	Visualizing Data	Ch 3
4	September 28	Maps in R	
5	October 5	Probability	
	October 12	THANKSGIVING NO LECTURE	
6	October 19	Statistical Tests	Ch. 4, 5, 6
7	October 26	Linear and Multiple Regression (1)	Ch 7, 8,
8	November 2	Linear and Multiple Regression (2)	Ch 7, 8,
9	November 9	1:1 Drop-in Help Session	
10	November 16	Logistic Regression	Ch. 8, 9
11	November 23	Multivariate Cluster Analysis	
12	November 30	Regionalization	Ch 12
13	December 7	Geocomputation Review	--

LAB CONTENT

Week	Dates	Topic	SWIRL
1	September 8	--	
2	September 15	Data Analysis in R	1 – 6
3	September 22	Visualizing Data	7, 12, 15
4	September 29	Mapping Data in R	
5	October 6	Assignment 1 Help	
6	October 13	READING WEEK NO LAB	
7	October 20	Statistical Tests	8-11
8	October 27	No LAB	
9	November 3	Correlation & Linear Regression	
10	November 10	Assignment 2 Help	
	November 17	Logistic Regression	
11	November 24	Cluster Analysis	
12	December 1	Regionalization	
13	December 8	Assignment 3 Help	

6. Learning Outcome

Upon successful completion of this course, students will be able to:



- Analyse quantitative geographical and statistical data
- Make informative graphical visuals using various data types
- Perform statistical tests to compare between different groups
- Fit regression models (linear and non-linear) using multiple covariates
- Perform exploratory (spatial) data analysis, such as cluster analysis
- Code statistical tests in R using the RStudio environment
- Interpret statistical results from the work of others

7. Communication



- ☒ Students should check the OWL site prior to each lecture and lab
- ☒ Course updates will be provided on the OWL announcements
- ☒ Students should email their instructor(s) and teaching assistant(s) using OWL Brightspace
- ☒ For any other communication, the centrally administered **e-mail account** provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner. You can read about the privacy and security of the UWO email accounts [here](#).
- ☒ This course will use the OWL Brightspace for discussions
- ☒ Students should post all course-related content on the discussion forum so that everyone can access answers to questions [This policy really helps with equity in the classroom. Some students are more comfortable reaching out to instructors, but everyone should have access to resources. Encourage posting on a forum so that students help one another, and all can see the responses.]
- ☒ The discussion forums will be monitored daily by instructors or teaching assistants

8. Evaluation

Below is the evaluation breakdown for the course. Any deviations will be communicated.

Assessment	Format	Weighting	Due Date
Labs	Lab questions	10%	Varies
Assignment 1	Report	20%	Friday, October 9
Assignment 2	Report	20%	Friday, November 13
Assignment 3	Report	20%	Friday, December 11
Final Exam	In-person	30%	TBD



The evaluation methods described in the course outline are essential requirements for the course.

Students are responsible for material covered in the lectures as well as the assigned chapters/sections in the text.

- ☒ All assignments are due at 11:55 pm EST unless otherwise specified

- ☒ Written assignments will be submitted to Turnitin (statement in policies below)
- ☒ Students will have unlimited submissions to Turnitin
- ☒ After an assessment is returned, students should wait 24 hours to digest feedback before contacting their evaluator; to ensure a timely response, reach out within 7 days

Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading. The table below outlines the University-wide grade descriptors.

A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work which is clearly above average
B	70-79	Good work, meeting all requirements, and eminently satisfactory
C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable
F	below 50	Fail

Grades will not be adjusted on the basis of need. It is important to monitor your performance in the course. Remember: *You* are responsible for your grades in this course.

9. Accommodation Policies

Students with disabilities work with Accessible Education (formerly SSD) which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The accommodation policy can be found here: [Academic Accommodation for Students with Disabilities](#).

General Information about missed work:

University policy on academic considerations are described [here](#). This policy requires that all requests for academic considerations must be accompanied by a self-attestation. Further information about academic considerations, and information about submitting this self-attestation with your academic consideration request may be found here.

Please note that any academic considerations granted in this course will be determined by the instructor, in consultation with the academic advisors in your Faculty of Registration, in accordance with information presented in this course outline.

Formal Documentation Designation statement:

Hailyye's Flexible Assignment Policy:

Every student will be allowed to submit an assignment late one time. You will have up to 5 days to get your assignment in late (until the following Wednesday). THERE IS NO NEED to email the instructor, the TA will identify this the first time you submit late. No questions will be asked. Any additional extensions or longer extensions will require formal academic consideration, otherwise late penalty will apply.

Absence from Course Commitments

Students must familiarize themselves with the Policy on Academic Consideration – Undergraduate Students in First Entry Programs

Students missing course work for medical, compassionate or extenuating circumstances can request academic consideration by completing a request at the central academic consideration portal. Students are permitted one academic consideration request per course per term without supporting documentation. Note that supporting documentation is **always** required for academic consideration requests for examinations scheduled by the office of the registrar (e.g. December and April exams) and for practical laboratory and performance tests typically schedule during the last week of the term. Students should also note that the instructor may designate one assessment per course per term that requires supporting documentation. This designated assessment is described elsewhere in this document. Please note that any academic considerations granted in this course will be determined by the instructor of this course, in consultation with the academic advisors in your Faculty of Registration, in accordance with information presented in this course outline. Supporting documentation for academic considerations for absences due to illness should use the Student Medical Certificate or, where that is not possible, equivalent documentation by a health care practitioner.

Accommodation for Religious Holidays

Students should review the policy for Accommodation for Religious Holidays. Where a student will be unable to write examinations and term tests due to a conflicting religious holiday, they should inform their instructors as soon as possible but not later than two weeks prior to writing the examination/term test. In the case of conflict with a midterm test, students should inform their instructor as soon as possible but not later than one week prior to the midterm.

10. Make-up Examinations

Procedure on makeup assessments for Social Science students and for courses offered by the Faculty of Social Science

Effective September 1, 2026

Students who miss a regularly scheduled test/quiz, mid-term, or final exam may request academic consideration through the Student Absence Portal.

If academic consideration is granted, students should consult the course outline for information regarding how the missed assessment will be addressed and follow any instructions provided by the instructor. At the instructor's discretion, the weight of a missed test/quiz or mid-term may be transferred to another assessment in the course, including the final exam, rather than requiring a makeup assessment. Reweighting is not available for missed final exams.

Students are entitled to **one makeup assessment opportunity** for a missed test/quiz, mid-term, or final exam supported by approved academic consideration. **No additional makeup opportunities will be provided.** Makeup assessments represent the final opportunity to complete a missed course assessment.

What happens if I miss a makeup assessment as a Social Science student or in a course offered by the Faculty of Social Science?

Students who miss a makeup assessment are not eligible for an additional makeup opportunity. Depending on their circumstances, they may:

1. Remain enrolled in the course and accept a grade of zero on the missed makeup assessment. Students should consult the course outline and calculate whether they can still achieve a passing grade in the course.
2. Withdraw from the course through Student Center before the published drop deadline. A course dropped before the deadline will result in a withdrawal (WDN) without academic penalty. Part-time students should consult the Registrar's Office refund schedule to determine whether a tuition refund is available. Students enrolled full-time in 4.0-5.0 courses are generally not eligible for tuition refunds when a course is dropped.
3. If the published drop deadline has passed and the missed makeup assessment is supported by appropriate documentation, students may submit their documentation through the Student Absence Portal to request a WDN (withdrawal without academic penalty). Approval is not automatic and remains subject to Faculty review. Requests for a second makeup assessment will not be considered.

Students are encouraged to carefully consider their ability to complete a makeup assessment as scheduled, as no further opportunities to complete the missed work will be available.

11. Use of Electronic Devices

Electronic devices will be allowed during tests and examinations.

12. How to Be Successful in this Class:

Students enrolled in this class should understand the level of autonomy and self-discipline required to be successful.

1. Invest in a planner or application to keep track of your courses. Populate all your deadlines at the start of the term and schedule time at the start of each week to get organized and manage your time.
2. Make it a daily habit to log onto OWL to ensure you have seen everything posted to help you succeed in this class.
3. Follow weekly checklists created on OWL or create your own to help you stay on track.
4. Take notes as you go through the lesson material. Keeping handwritten notes or even notes on a regular Word document will help you learn more effectively.
5. Connect with others. Try forming a study group and try meeting on a weekly basis for study and peer support.
6. Do not be afraid to ask questions. If you are struggling with a topic, check the online discussion boards or contact your instructor(s) and or teaching assistant(s).
7. Reward yourself for successes. It seems easier to motivate ourselves knowing that there is something waiting for us at the end of the task.



13. Use of Generative Artificial Intelligence (AI)

The use of generative AI tools will be discussed in class including where they can be appropriately used in assessments and the writing of R code and how to use them. Further, we will explore how to verify/check outputs for accuracy and relevance in solving data analysis

problems. This link is very helpful for thinking about the pros and cons of using AI tools:
<https://ai.uwo.ca/using-ai/ai-dos-donts.html>

14. 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](#).

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

15. Western's Commitment to Accessibility

The Department of Geography and Environment strives at all times to provide accessibility to all faculty, staff, students and visitors in a way that respects the dignity and independence of people with disabilities.

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 519-661-2147 for any specific question regarding an accommodation. [Information regarding accommodation of exams](#) is available on the Registrar's website.

More information about ["Accessibility at Western"](#) is available.

16. Mental Health

If you or someone you know is experiencing distress, there are several resources here at Western to assist you. Please visit Western's [Health and Wellness website](#) for more information on mental health resources.

17. Support Services

[Western's Support Services](#)
[Student Development Centre](#)

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

18. Important Dates

September 9: Classes resume

September 17: Last day to add a first term half course
October 12: Thanksgiving Holiday – Department Office Closed
October 10-18: Fall Reading Week (No classes; Department Office open)
November 30: Last day to drop a first term half course or a full course without penalty
December 9: Classes end
December 10: Study day
December 11-22: Examination Period