

## GEOGRAPHY FINAL COURSE OUTLINE: WINTER 2020

### GEOGRAPHY 485 GFC HOURS (3-2)

#### Quantitative Analysis

Section	Days	Time	Location
LEC 01	MoWeFr	13:00 – 13:50	ES 443
LAB 01	Tu	08:00 – 09:50	ES 307
LAB 02	We	08:00 – 09:50	ES 407
LAB 03	Fr	14:00 – 13:50	ES 407

Instructor: John Yackel	Office: ES 444
Telephone: 403 220 4892	Email: <a href="mailto:yackel@ucalgary.ca">yackel@ucalgary.ca</a>

*Please note: The emergency evacuation assembly point for all classes taught in Earth Sciences is ICT Food Court.*

#### Official Course Description

The field of Geography is marked by diversity in subject matter, which includes physical (environmental), human (socio-economic), and integrated (human-physical) topics of inquiry. It is therefore not surprising to learn that there exists a variety of analytical methods which geographers employ to study these subjects. This course serves as an introduction to these analytical approaches, taking you from basic terminology, probability theory, the collection (sampling) and presentation of geographic data (descriptive statistics), inferential testing (analysis) and interpretation. The course is targeted to junior level geography students and related disciplines with limited backgrounds in statistical methodology to geographic problem solving. Analytical examples and problem solving will involve the use of statistical computer packages in the lab. Students will leave this course with basic knowledge and experience in 'stats' fundamentals and an appreciation for how they are applied to various types of geographic data.

#### Course Objectives

The primary objective of this course is to introduce and explain introductory concepts of quantitative methods for use in a wide range of geographic analyses.

#### Course Learning Outcomes

The Department of Geography is committed to student knowledge and skill development. The table below lists the key learning outcomes for this course, the program-learning outcomes to which they contribute, and the expected level of achievement.

Course Learning Outcomes	PLO(s)	Level(s)
Distinguish and compare basic data characteristics, concepts, and strategies for preparation and display	3,6	1,2
Distinguish, compare and be able to apply basic descriptive statistics: measures of central tendency, dispersion, shape, etc	3,6	1,2
Explain the probabilistic underpinnings of inferential statistics: basic probability theory, probability distribution functions, problem-solving	3,5,6,7	1,2
Explain and be able to apply the framework for both classical and p-value hypothesis testing	3,6,7	1
Identify and interpret a variety of statistical tests wielded in an inferential, hypothesis-testing framework	3,5,6	1

Describe the basic concepts of simple bivariate regression, and set the stage for more advanced regression analyses in subsequent courses	3,6	1
Explain the particular challenges associated with quantitative analysis of spatial data: MAUP, autocorrelation, boundary issues, scale, etc.	3,6,7	1,2
Apply a variety of descriptive statistics and graphics to Geographic data for the purpose of summarizing the salient ideas.	3,5,6,7	1,2
Explain and apply the concept of probability; list probability distribution types; explain components and utility of the normal distribution and central limit theorem	3,6,7	1,2
Explain basic concepts in estimation and apply towards confidence interval generation; probability sampling concepts, types and size selection	3,5,6,7	1
Explain and apply terms and concepts in hypothesis testing; one, two and three or more sample difference of means parametric (and non-) tests; p-value	3,5,6,7	1
List, explain and apply inferential categorical difference tests and spatial sampling techniques to geographic data	3,5,6	1
Explain and apply tests appropriate to evaluate the statistical relationship between variables (both parametric and non-parametric tests).	3,5,6,7	1
Explain the concept of multivariate regression, spatial autocorrelation; multicollinearity and residual analysis	3,5,6,7	1

*\*PLOs = Program Learning Outcomes: 1 = reflect and communicate diverse human-environment perspectives, 2 = identify and explain human-environment processes, 3 = implement sampling, data collection, analyses and communication methods, 4 = analyze spatial and temporal aspects of human-environment systems, 5 = employ knowledge, arguments, and methodologies for solving human-environment problems, 6 = evaluate geospatial data and manipulate it to create cartographic products, 7 = communicate geographic concepts using oral, written, graphic, and cartographic modes, and 8 = demonstrate literacy skills.*

*\*\*Levels: 1 = Introductory, 2 = Intermediate, and 3 = Advanced.*

### **Prerequisites**

GEOG 231 or GEOG 380

### **Learning Resources**

An Introduction to Statistical Problem Solving in Geography, 3rd edition by J. Chapman McGrew Jr., A.J. Lembo Jr., and Charles B. Monroe, published by Waveland Press Inc., 2014.

### **Grading (Weighting)**

1.	Laboratory Assignments (5 Assignments)	25%
2.	In-Class Assignments/Class Participation	5%
3.	Term Tests (2 tests, 15% each)	30%
4.	Registrar-Scheduled Final Exam	30%

The final exam will be scheduled by the Registrar.

It is not necessary to pass each course element in order to pass the course as a whole.

Late assignments without prior arrangement will be penalized 20% per day.

## Grading System

96 – 100	A+	77 – 80	B	59 – 61	C-
90 – 95	A	71 – 76	B-	55 – 58	D+
86 – 89	A-	65 – 70	C+	50 – 54	D
81 – 85	B+	62 – 64	C	0 – 49	F

The only acceptable reasons for missing an examination or assignment in this class, as listed in the Deferral of Final Examinations section of the University of Calgary Calendar are illness, domestic affliction, or religious conviction. If you miss an assignment or examination, and you provide me with the appropriate documentation, you will have one opportunity to make arrangements for the missed work. Without appropriate documentation, you will receive a zero for that portion of your grade. Deferred exams will be administered at a set time each week (Fridays, 8:00-9:30am), and must be arranged within one week of the original exam.

## Supplementary Fees

None.

*For additional detailed course information posted by the instructor, visit the course Desire2Learn page online at <https://d2l.ucalgary.ca/d2l/home>.*

## SUPPLEMENTAL INFORMATION

### Principles of Conduct

The University Calendar includes a statement on the principles of conduct expected of all members of the university community (including students, faculty, administrators, any category of staff, practicum supervisors, and volunteers), whether on or off university property. This statement applies in all situations where members of the university community are acting in their university capacities. All members of the university community have a responsibility to familiarize themselves with the principles of conduct statement, which is available at: [www.ucalgary.ca/pubs/calendar/current/k.html](http://www.ucalgary.ca/pubs/calendar/current/k.html).

### Plagiarism, Cheating, and Student Misconduct

The University of Calgary is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect.

Academic dishonesty is not an acceptable activity at the University of Calgary, and students are **strongly advised** to read the Student Misconduct section in the University Calendar at: [www.ucalgary.ca/pubs/calendar/current/k-3.html](http://www.ucalgary.ca/pubs/calendar/current/k-3.html). Often, students are unaware of what constitutes academic dishonesty or plagiarism. The most common are (1) presenting another student's work as your own, (2) presenting an author's work or ideas as your own without adequate citation, and (3) using work completed for another course. Such activities will not be tolerated in this course, and students suspected of academic misconduct will be dealt with according to the procedures outlined in the calendar at: [www.ucalgary.ca/pubs/calendar/current/k-5.html](http://www.ucalgary.ca/pubs/calendar/current/k-5.html).

### Instructor Intellectual Property

Information on Instructor Intellectual Property can be found at <https://www.ucalgary.ca/policies/files/policies/Intellectual%20Property%20Policy.pdf>

### **Freedom of Information and Protection of Privacy**

Freedom of Information and Protection of Privacy (FOIP) legislation in Alberta disallows the practice of having students retrieve assignments from a public place, such as outside an instructor's office, the department office, etc. Term assignments will be returned to students individually, during class or during the instructor's office hours; if students are unable to pick up their assignments from the instructor, they must provide the instructor with a stamped, self-addressed envelope to be used for the return of the assignment.

### **Human subjects**

Students in the course will be expected to participate as researchers for one class TBD.

### **Internet and electronic communication device information**

There are no restrictions on the use of laptops and tablets in class if they are used to take notes or find information relevant to the class, and if there is no disturbance or distraction of other students or the instructor. Phones must be turned off during class, unless you have previously identified yourself to the instructor as a health care or law enforcement professional.

### **Posting of Grades and Picking-up of Assignments**

Graded assignments will be returned by the instructor or teaching assistant personally during scheduled lecture or laboratory periods, unless they are made available electronically through the course D2L webpage. Grades and assignments will not be available at the Department of Geography's main office.

### **Academic Accommodations**

It is the student's responsibility to request academic accommodations, according to the university policies and procedures listed in the University Calendar.

The student accommodation policy can be found at: [www.ucalgary.ca/access/accommodations/policy](http://www.ucalgary.ca/access/accommodations/policy). Students needing an accommodation because of a disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities: [www.ucalgary.ca/policies/files/policies/student-accommodation-policy.pdf](http://www.ucalgary.ca/policies/files/policies/student-accommodation-policy.pdf).

Students needing an accommodation based on a protected ground other than disability should communicate this need, preferably in writing to their instructor or the Department Head (email: [david.goldblum@ucalgary.ca](mailto:david.goldblum@ucalgary.ca)).

### **Copyright Legislation**

All students are required to read the University of Calgary policy on Acceptable Use of Material Protected by Copyright ([www.ucalgary.ca/policies/files/policies/acceptable-use-of-material-protected-by-copyright.pdf](http://www.ucalgary.ca/policies/files/policies/acceptable-use-of-material-protected-by-copyright.pdf)) and requirements of the copyright act (<https://laws-lois.justice.gc.ca/eng/acts/C-42/index.html>) to ensure they are aware of the consequences of unauthorised sharing of course materials (including instructor notes, electronic versions of textbooks etc.). Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Act.

### **Wellness and Mental Health Resources**

The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness, and academic success and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support, or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, <https://www.ucalgary.ca/wellnesscentre/services/mental-health-services>) and the Campus Mental Health Strategy website (<http://www.ucalgary.ca/mentalhealth/>).

**Contact Information for Student and Faculty Representation**

- Student Union VP Academic 403-220-3911, [suypaca@ucalgary.ca](mailto:suypaca@ucalgary.ca)
- Students Union Representatives for the Faculty of Arts – 403-220-3913, [arts1@su.ucalgary.ca](mailto:arts1@su.ucalgary.ca), [arts2@su.ucalgary.ca](mailto:arts2@su.ucalgary.ca), [arts3@su.ucalgary.ca](mailto:arts3@su.ucalgary.ca), [arts4@su.ucalgary.ca](mailto:arts4@su.ucalgary.ca)
- Student Ombuds Office information can be found at: [www.ucalgary.ca/ombuds/](http://www.ucalgary.ca/ombuds/)

**Campus Safewalk**

Campus Security, in partnership with the Students' Union, provides the Safewalk service, 24 hours a day, to any location on Campus, including the LRT station, parking lots, bus zones, and university residences. Contact Campus Security at 220-5333 or use a help phone, and Safewalkers or a Campus Security officer will accompany you to your campus destination.

