

**GEOGRAPHY FINAL COURSE OUTLINE: FALL 2018**  
**GEOGRAPHY 339**  
**H (3-2)**

**Analytical Methods in Geography I**

<b>Section</b>	<b>Days</b>	<b>Time</b>	<b>Location</b>
LEC 01	MWF	11:00 -11:50	ST132
LAB 01	T	11:00-13:50	ES415
LAB 02	R	14:00-16:50	ES415
LAB 03	F	08:00-10:50	ES415
LAB 04	F	1400:16:50	ES415

Instructor: Brent Else	Office: ES 340
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Office Hours: By appointment	

<b>Teaching Assistant:</b> Tyler Gough	<b>Office:</b> TBA
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**Please note: The emergency evacuation assembly point for classes taught in Science Theatres is the Professional Faculties – 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. This course serves as an introduction to these analytical approaches, taking you from the collection and presentation of geographic data to analysis and interpretation. The course is targeted for undergraduate students in geography and related disciplines with limited backgrounds in statistical approaches to geographic problem solving. Analytical examples and problem solving will involve the use of statistical computer packages. Students will leave this course with knowledge and experience in ‘stats’ and an appreciation for how they are applied to geographic issues.

**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 they facilitate and the expected level of achievement.

<b>Course Learning Outcomes</b>	<b>PLO(s)</b>	<b>Level(s)</b>
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: central tendency, dispersion, 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, (3) Advanced.

**Prerequisites:** Geography 231

**Supplementary Fees:** No supplementary fee has been assessed for this course.

**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):**

In-class "Quizzes" (5 quizzes, top 4 recorded, 7.5% each)	30%
Laboratory Assignments (5 assignments, 8% each)	40%
Registrar-scheduled Final Exam	30%

**There will be a Registrar scheduled final exam for this course.**

**Grading System:**

94-100	A+	74-78	B	60-63	C-
86-94	A	70-74	B-	55-50	D+
82-86	A-	67-70	C+	50-55	D
78-82	B+	63-67	C	0-50	F

For additional detailed course information posted by the Instructor Desire2Learn at <https://d2l.ucalgary.ca/d2l/home>

**Reading Schedule**

Week	Textbook Readings
Sep. 3 – 7	Chp 1 (Introduction)
Sep. 10 – 14	Chp 2 (Geographic Data), Chp 3 (Descriptive Statistics)
Sep. 17 – 21	Chp 3 (Descriptive Statistics), Chp 4 (Descriptive Spatial Statistics)
Sep. 24 – 28	Chp 5 (Probability/Discrete Distributions), Chp 6 (Continuous Distributions)
Oct. 1 – 5	Chp 7 (Sampling), Chp 8 (Estimation)
Oct. 8 – 12	Chp 8 (Estimation)
Oct. 15 – 19	Chp 9 (Inferential Statistics)
Oct. 22 – 26	Chp 10 (Difference Tests), Chp 11 (ANOVA)
Oct. 29 – Nov. 2	Chp 11 (ANOVA)
Nov. 5 – 9	Chp 12 (Categorical Difference Tests)
Nov. 12 – 16	Reading Break
Nov. 19 – 23	Chp 16 (Correlation), Chp 17 (Linear Regression)
Nov. 26 -30	Chp 17 (Linear Regression), Chp 18 (Multiple Regression)
Dec. 3 – 7	Chp 14 (Point Pattern Analysis), Chp 15 (Area Pattern Analysis)

**Course Schedule**

<span>◀</span> Aug 2018 <b>September 2018</b> <span>Oct 2018 ▶</span>						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18 Lab 1 - Introduction	19	20	21 Lab 1 – Introduction <b>QUIZ #1</b>	22
23	24	25 Lab 1 - Work	26	27	28 Lab 1 - Work	29
30						

◀ Sep 2018		October 2018				Nov 2018 ▶	
Sun	Mon	Tue	Wed	Thu	Fri	Sat	
	1	2 Lab 1 - Due Lab 2 - Introduction	3	4	5 Lab 1 - Due Lab 2 - Introduction	6	
7	8 Thanksgiving	9 Lab 2 - Work	10	11	12 Lab 2 - Work <b>QUIZ #2</b>	13	
14	15	16 Lab 2 - Due Lab 3 - Introduction	17	18	19 Lab 2 - Due Lab 3 - Introduction	20	
21	22	23 Lab 3 - Work	24	25	26 Lab 3 - Work	27	
28	29 <b>QUIZ #3</b>	30 Lab 3 - Due Lab 4 - Introduction	31				

◀ Oct 2018		November 2018				Dec 2018 ▶	
Sun	Mon	Tue	Wed	Thu	Fri	Sat	
				1	2 Lab 3 - Due Lab 4 - Introduction	3	
4	5	6 Lab 4 - Work	7	8	9 Lab 4 - Work	10	
11	12 ←-----	13 -----	14 READING BREAK	15 -----	16 -----→	17	
18	19	20 Lab 4 - Due Lab 5 - Introduction	21 QUIZ #4	22	23 Lab 4 - Due Lab 5 - Introduction	24	
25	26	27 Lab 5 - Work	28	29	30 Lab 5 - Work		

◀ Nov 2018		December 2018				Jan 2019 ▶	
Sun	Mon	Tue	Wed	Thu	Fri	Sat	
						1	
2	3	4 Lab 5 - Due	5	6	7 Lab 5 – Due QUIZ #5	8	
9	10	11	12	13	14	15	
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	
30	31						

**Human subjects**

Students are not expected to participate as researchers for in-class assignments

**Supplementary Fees**

Not Applicable

**SUPPLEMENTAL INFORMATION****Writing across the Curriculum**

Writing skills are not exclusive to English courses and, in fact, should cross all disciplines. The university supports the belief that throughout their university careers students should be taught how to write well, so that when they graduate their writing abilities will be far above the minimal standards required at entrance. Consistent with this belief, students are expected to do a substantial amount of writing in their university courses and, where appropriate, faculty members can and should consider quality of writing as a factor in the evaluation of student work. The services provided by Writing Support Services can be utilized by all undergraduate and graduate students who feel they require further assistance: [www.ucalgary.ca/ssc/writing\\_support/overview](http://www.ucalgary.ca/ssc/writing_support/overview).

**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 the Department Head (email: [geograph@ucalgary.ca](mailto:geograph@ucalgary.ca)).

**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).



**Internet and electronic communication device information:**

There is no restriction 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. The use of any calculators and/or devices during examinations will be allowed, following guidelines set out by the instructor.

**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.

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

Graded assignments will be returned by the instructor or teaching assistant personally during schedule 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.

**Faculty of Arts Program Advising and Student Information Resources**

Have a question, but not sure where to start? The Faculty of Arts Students Centre is your information resource for everything in Arts! Drop in at SS 102, call us at 403-220-3580, or email us at [ascarts@ucalgary.ca](mailto:ascarts@ucalgary.ca). You can also visit the Faculty of Arts website at <http://arts.ucalgary.ca/undergraduate>, which provides detailed information about common academic concerns.

For guidance on course registration (add, drop, swap), information about paying fees, and assistance with your Student Centre, contact Enrolment Services at 403-210-7625 or visit them at the MacKimmie Block.

**Contact Information for Student and Faculty Representation**

- SU VP Academic Phone: 220-3911 and e-mail: [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca)
- SU Faculty Rep. Phone: 220-3913 and e-mail: [arts1@ucalgary.ca](mailto:arts1@ucalgary.ca)
- The students ombudsman office information can be found at: [www.ucalgary.ca/ombuds/](http://www.ucalgary.ca/ombuds/)

**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/>).

**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.

**USRI Surveys**

At the University of Calgary, feedback provided by students through the Universal Student Ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses ([www.ucalgary.ca/usri](http://www.ucalgary.ca/usri)). Your responses make a difference, so please participate in USRI surveys.