GEOGRAPHY FINAL COURSE OUTLINE: FALL 2019

GEOGRAPHY 482
GFC HOURS (3-2)

Geographic Information Systems and Science

Section	Days	Time	Location
LEC 01	TuTh	09:30 – 10:45	MS 217
LAB 01	Mo	11:00 – 12:50	ES 407
LAB 02	Tu	17:00 – 18:50	ES 407

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Please note: The emergency evacuation assembly point for all classes taught in Mathematical Sciences is Social Sciences Food Court.

Official Course Description

The technical and theoretical foundations of Geographic Information Science. Explorations of data types and structures, data integrity, metadata, data acquisition and maintenance, analytical techniques, and methods for geovisualization will be explored in lecture and laboratory.

Course Objectives

This intermediate-level course about geographic information systems (GIS) focuses on geospatial data management and spatial analytics for continuous and discrete geographic features. Lecture material will emphasize Geographic Information Science (GISci) as a foundation that guides GIS data collection, analysis, and visualization. Students will become skilled at using industry-standard GIS software, such as the ArcGIS Desktop® software suite, through weekly computer laboratory exercises and online training.

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)
Explain the two dominant models of geographic representation (discrete entities and continuous fields) and describe their relationship to the common spatial data models used in geography (raster and vector datasets).	**3, 6**	**2**
Describe the fundamental components of a vector dataset, including why topology is useful for data validation, analysis, and editing.	**6**	**3**
Describe the fundamental structure of a raster dataset, including multi-band and multi-dimensional data structures.	**6**	**3**
Recognize common coordinate systems and map projections, and appropriately transform geographic data between different coordinate systems and projections.	**6**	**2**
Acquire spatial data from public and institutional sources, distinguishing datasets captured from primary and secondary sources.	**3**	**2**
Assemble related spatial datasets, and create and maintain geographic databases to manage these data in a geographic information system (GIS).	**3**	**2**

Identify sources of uncertainty in geographic data, trace their propagation through various forms of spatial analysis, assess and visualize their impacts on analytical outputs, and interpret results recognizing the effects of uncertainty	**6**	**1**
Recognize and describe the role of relational database management systems in GIS.	**6**	**1**
Competently employ the ArcGIS Desktop® software package to manage, analyze, and visualize geographic data.	**4, 6, 7**	**2**
Apply principles of Geographic Information Science (GISci) to select and utilize various GIS analysis techniques related to query, measurement, and transformations.	**4, 6, 7**	**2**
Apply principles of map design to create cartographic products that effectively communicate the results of GIS operations.	**6, 7**	**2**
Describe legal and ethical considerations about the use and dissemination of spatial information and GIS products.	**3, 7, 8**	**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

Prerequisite: 3 units from Geography 231, 380.

Learning Resources

One of the following texts is required for this course:

- Chang, K. 2019. *Introduction to Geographic Information Systems*, 9th Edition. McGraw Hill: New York, NY. 466 pp. (recommended version)
- Chang, K. 2016. *Introduction to Geographic Information Systems*, 8th Edition. McGraw Hill: New York, NY. 448 pp. (available on reserve at the Taylor Family Digital Library)

Readings from other sources may be assigned – notifications will be posted on D2L, and additional readings will not require purchase.

Grading (Weighting)

Online training exercises	10%
GIS lab assignments	40%
One midterm test (15 Oct.)	15%
Final examination (date TBA)	35%

The schedule for midterm tests, online training exercises, and the GIS lab assignments will be posted to the course web page on the university's Desire2Learn system. Deadlines for assigned work are firm, and late submissions are not accepted

The two-hour final examination will be scheduled by the Registrar's Office during the final exam period. The exam will be closed-book, and no aids (e.g., notes, textbooks, laptops, etc.) will be permitted.

To pass the course, students must receive a passing grade in both the lecture component (i.e., combined scores from the midterm test and final exam) and the laboratory component (i.e., combined scores from the online training exercises and the lab assignments).

Students who miss an in-class term test or assignment deadline will automatically receive a grade of zero (0) for that item in their course evaluation. If a student missed the test or assignment because of extenuating circumstances, they must contact the instructor immediately to discuss alternatives to the zero grade received for the missed assessment. Deferred tests or assignments are not normally offered; students should consult with their instructor to determine what options exist to accommodate the missed assessment (see the University Calendar – Academic Regulations under section G.1.1 Course Assessments and Absences for procedures on missed term tests and assignments).

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

Supplementary Fees

No supplementary fees will be assessed for this course.

Course-Specific Administrative Policies and Procedures

This section describes the administrative policies and procedures that students are expected to follow for this course. If you have questions or concerns about these policies or procedures, please speak to your instructor immediately.

1. Regular attendance to lectures is strongly encouraged. If you must miss a lecture for any reason, you are not required to contact your instructor. It is each student's individual responsibility to make up the missed material on their own.
2. All materials presented in this course are examinable, including lecture slides, information presented verbally by the instructor during lectures, all assigned readings, supplementary materials posted to the course D2L page, online exercises and lab assignments, etc.
3. One in-class term tests will be assigned on 15 October 2019. It is mandatory that you complete this test in-class. If you are absent on the day that the test is given, you will receive a zero (0) for the test unless you have made arrangements with the instructor prior to the date of the test.
4. If you miss an in-class term test or assignment deadline because of extenuating circumstances, contact your instructor immediately on your return to discuss alternatives to the zero grade you received for the missed assessment (see the University Calendar – Academic Regulations section G.1.1 Course Assessments and Absences for procedures on missed term tests and assignments).
5. You will be required to complete several assignments during this course. A due date and time will be posted on D2L for each assignment, and these deadlines are firm. If extenuating circumstances arise that will prevent you from completing an assignment by the deadline, you must request an extension from your lab Teaching Assistant at least one business day in advance of the deadline. Late submissions are not accepted.
6. All assignments must be submitted online through the course D2L page using the appropriate dropbox provided for each of your assignments, and this is the only acceptable submission format (e.g., hardcopy or email submissions will not be accepted). D2L will not permit you to submit materials beyond the posted deadline.
7. The D2L submission system enables you to view your uploaded files to verify that they are correct and complete (if you don't know how to do this, please ask your TA to demonstrate it for you). In this course, **you are required to verify that your uploaded submissions are correct**. Requests to resubmit materials after a submission deadline has passed, or especially after an assignment has been graded, will not be granted – ensure that you have uploaded the correct materials after you submit your work.

a. Lab reports should be uploaded individually in one of the following formats: Microsoft Word (.docx or .doc), Adobe Acrobat (.pdf), or Real-text format (.rtf). Do not zip-archive your lab report or a grade penalty may be assigned.

b. The other files in your submission (e.g., data files, maps, etc.) should be zip-archived (.zip or .7z file), especially if there are multiple other files in your submission. If you are not sure how to create zip files, please ask your Teaching Assistant for a demonstration.

8. Your lab Teaching Assistant will be available for consultation and assistance during the scheduled lab period and their scheduled office hours. Your TA is not compensated for their time outside of these hours, so please refrain from seeking their help outside of lab hours or office hours. (Remember, they are students, too, with their own busy schedule and work to complete!)

9. **Plagiarism is a serious academic offence that will be vigilantly monitored and reported in this course.** Essentially, plagiarism can arise whenever a student submits material for evaluation that was not entirely their own work (e.g., copied from another student, "borrowed" from another source without proper citation, based on ideas that were not your own) and the source of that work was not appropriately acknowledged. All students in this course are required to review and become familiar with university policies and regulations regarding plagiarism and academic misconduct in the University Calendar.

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.

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. 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.

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 will not participate as subjects or researchers on human subjects in this course.

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 muted during class so that they do not disturb others in the classroom.

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. 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.

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).

Documentation for Absences or Missed Course Assessments
Students who are absent from class assessments (tests, participation activities, or other assignments) should inform the instructor as soon as possible. Instructors may request that evidence in the form of documentation be provided. If the reason provided for the absence is acceptable, instructors may decide that any arrangements made can take forms other than make-up tests or assignments. For example, the weight of a missed grade may be added to another assignment or test. For information on possible forms of documentation, including statutory declarations, please see https://www.ucalgary.ca/pubs/calendar/current/m-1.html

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) 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 disciplines 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, suvpaca@ucalgary.ca
- Students Union Representatives for the Faculty of Arts – 403-220-3913, arts1@su.ucalgary.ca, arts2@su.ucalgary.ca, arts3@su.ucalgary.ca, arts4@su.ucalgary.ca
- Student Ombuds Office information can be found at: 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.