

GEOG 680 L01 Principles of Digital Cartography and Geovisualization

GFC Hours 3-2

Fall 2023 classes: September 5th – December 6th, 2023.

Section	Days	Time	Location
Lec - L01 (Blended Learning)	Tuesdays	12:30-13:45	ES 342
	Online lectures	Web-based	
Lab - B01	Wednesdays	11:00-12:50	ES 407
Instructor: Dr. Darren Sjogren		Office: ES 456	
Telephone: 403-220-2575		Email: sjogren@ucalgary.ca	
Communication during the term will be in Microsoft Teams.		Office hours: Tuesdays and Thursdays. By appointment, contact in Microsoft Teams.	

The **Department of Geography** condemns the longstanding and continued injustices against those marginalized by racism, sexism, homophobia, transphobia, classism, xenophobia, able-bodied normativity, mental health profiling, and other forms of prejudice. We are pained by the fact that injustices are unevenly borne.

Territorial Acknowledgement

The Department of Geography would also like to acknowledge the traditional territories of the people of the Treaty 7 region in southern Alberta. The City of Calgary is also home to Métis Nation of Alberta, Region III. <https://www.ucalgary.ca/indigenous/cultural-protocol>

Official Course Description

Theoretical and practical approaches to map design are used to explain techniques for effective map production and communication of inherently spatial information. Static, dynamic, and interactive visualizations of maps and spatial processes are used to explore geographic data from a variety of sources in physical and cultural spaces.

Course Objectives

This course focuses on the creation and analysis of cartographic and geovisualization products. The lecture material will provide background into various aspects of cartographic representation, geographic visualization, and communication. Students will become skilled at using industry-standard GIS software, ArcGIS® software suite, through weekly computer laboratory exercises and online training. The laboratory exercises will cover some contemporary methods like multiscale, 3D, interactive, animation, and narrative mapping as well as traditional cartographic techniques.

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)**
By the end of this course, a successful student will be able to:		
Produce a cartographic product appropriate to a dataset.	3,6,7	2
Select, analyze, and evaluate appropriate graphic representation techniques for a range of temporal, attribute, and spatial scales.	3,6,7	2
Assess, critique, and implement principles of map design: including layout, color, symbolization, and typography.	3,6,7	2
Implement and analyze data considerations for cartographic processes such as data abstraction, generalization, classification, and selection.	3,6,7	2
Assess and implement map projections for producing cartographic products	3,6,7	2
Create static and interactive geovisualization products	3,6,7	2
Competently employ components of the ArcGIS® software suite and related software packages to map and visualize geographic data.	3,6,7	2

**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

Consent of the Department.

Course Format

1. The 'Lecture' component consists of:
 - a. Recorded lectures which students are expected to watch on their own time, prior to the in-person scheduled class period.
 - b. Scheduled class periods will be a mixture of lecture and discussion. The discussion will focus on the recorded lectures.
 - c. Assessment is based on quizzes, midterm, and a final exam.
2. The 'Laboratory' component consists of:
 - a. Lab introductions will be presented by the TA during the formal lab period. This is usually 15-30 minutes long. Students are required to attend these sessions. The TA will not repeat the introduction to students who do not attend the lab period. Students are encouraged to remain for the entire lab period so they can access the TA as issues arise.
 - b. Lab components not completed during the formal lab period are to be completed on the student's own time. All submitted materials must be the student's own work (see Academic Integrity sections below). Consultation, for the purpose of problem solving, with other students is encouraged.
 - c. The TA will have formal 'availability hours' to answer questions. Students will be expected to contact the TA using Teams (no email) to schedule a time for assistance.
 - d. Assessment is based on lab assignments and a lab exam.

Assessment Methods

The following evaluation components will be used to determine the overall grade in this course.

Component #1 – Lecture

Quizzes (online)	06%
Midterm (October 17)	14%
Final exam (Registrar scheduled)	20%

Component #2 – Laboratory

Lab assignments	50%
Lab exam (November 28)	10%

Notes:

1. There **IS** a registrar scheduled final exam in this course.
2. To successfully pass this course, students must earn $\geq 50\%$ for **both** Components indicated above. This means 20/40 for Component #1 and 30/60 for Component #2. If a student receives $\geq 50\%$ on both Components, the final percent grade will be calculated using the weighting indicated above. The final letter grade will be determined using the Grading System below.

Further details about lecture topics, lab assignment topics and deadlines, quizzes, and examinations will be provided at the beginning of the course. The midterm and lab exam will be scheduled during the lecture period (see schedule), whereas the final exam will be Registrar scheduled. All examinations will be closed book. Quizzes will be open book.

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

Flexible Grade Option (CG Grade)

<https://www.ucalgary.ca/pubs/calendar/current/f-1-3.html>

Late Assignments and Missed Tests

- THERE WILL BE NO MAKEUP OR DEFERRED MIDTERM OR LAB EXAM under any circumstances. No examinations may be written early. Students who do not write the Midterm or the Lab Exam will have the weight of the missed exam shifted to the Final Exam. A statutory declaration for a missed midterm or lab exam is not required.
- You will be required to complete several laboratory assignments in this course. A due date and time will be posted for each assignment, and these deadlines are strict. If extenuating circumstances arise that will prevent you from completing an assignment by the deadline, contact your instructor **AND** teaching assistant at least one business day before the deadline to discuss whether an extension can be granted. No extensions will be provided after the deadline. Late submissions will be accepted at a penalty of 10% per calendar day, or any portion thereof, past the deadline (e.g., up to 24 hours late = 10% penalty, 24+ hours late = 20% penalty, 48+ hours late = 30% penalty, etc.).
- All assignments must be submitted online following the instructions provided. Submissions which do not follow the instructions will receive a "0%" (e.g., email submissions will not be accepted).

Exams & Deferrals <https://www.ucalgary.ca/registrar/exams>

Supplementary Fees

Not applicable

Referencing Standard

In written work presented in this class, the two accepted methods for referencing the work of others will be (1) Chicago Manual of Style: <https://www.chicagomanualofstyle.org/home.html> or (2) American Psychological Association: <https://apastyle.apa.org/products/publication-manual-7th-edition>

Important Dates

The last day to drop this course and receive a tuition fee refund is **Thursday, September 14th, 2023**. The last day to add or swap a course for Fall 2023 is **Friday, September 15th, 2022**. The last day to withdraw from this course is **Wednesday, December 6th, 2022**. Please note that the University is closed on Friday, September 30th; Monday, October 9th; and Friday, November 13th, 2023.

Learning Resources (Textbook and Readings)

The following textbook is recommended.

Kraak, Menno-Jan & Ormeling, Ferjan. 2021. Cartography: Visualization of Geospatial Data, 4th edition. CRC Press.

An electronic version of this book can be purchased or rented through the UofC Bookstore. Also, the library has a 3-user licence for the book. It can be accessed [HERE](#). Note: there will be approximately 24 students from GEOG 680 who could, potentially, be accessing this book.

Required readings will be assigned from the ***University Consortium for Geographic Information Knowledge*** (<https://gistbok.ucgis.org/>).

Additional required readings from other sources may be assigned – notifications will be posted online, and additional readings will not require purchase and be available through the UofC Library.

Learning Resources - Teams for Education Learning Management System

This course will use the Microsoft Teams for Education online learning management system for most online course materials and interaction (e.g., video calls, text-based chat, posting of lecture materials, recorded videos, assignment submission, online gradebook, etc.). ***To use Microsoft Teams, students are required to enable multi-factor authentication (MFA) on their UCalgary Office365 accounts.*** For more information on multi-factor authentication and how to get started, see [LINK](#). For information on obtaining and installing Microsoft Teams, see [LINK](#). A Microsoft Teams software client capable of video calls will be required for some course components.

Enrolled students will receive an invitation to the course Microsoft Teams workspace during the first week of the term. Note that Microsoft Teams will largely replace Desire2Learn (D2L) and Zoom for the delivery of online content in this course.

Learning Resources - Technologies and Requirements

To successfully engage in their learning experiences at the University of Calgary, students taking online, remote, and blended courses are required to have reliable access to the following technology:

- A computer with a supported operating system, as well as the latest security and malware updates
- A current and updated web browser
- Webcam (built-in or external)
- Microphone and speaker (built-in or external) or headset with microphone
- Broadband internet connection

Learning Resources – ArcGIS Pro and ArcGIS Online software

The exercises and assignments in this course will primarily use Esri's ArcGIS Pro and ArcGIS Online software. Students may obtain a licence to install ArcGIS Pro on their personal computers. ArcGIS Pro runs on the Windows operating system only, and system requirements for the software can be found on the software vendor's website [LINK](#).

For Apple Mac users, it may be possible to install the Windows operating system on a Mac computer using either Apple's [Boot Camp](#) or a commercial virtualization client, such as [Parallels Desktop](#) or [VMware Fusion for Mac](#), although these options are supported by the University of Calgary, and students must obtain and install necessary software themselves (student discounts are often available to offset the cost of purchasing commercial virtualization software and a licence for the Windows operating system). Interested students are advised to contact their instructor for more information.

Anyone with a University IT account can create an Esri Account for access to ArcGIS Online, Esri Training and ArcGIS Pro *without having to submit a request*. Updated instructions are available in the following articles, previous instructions have been removed.

- [ArcGIS – Esri Account](#) (How to access ArcGIS Online, ArcGIS Pro and Esri Training)
- [ArcGIS Pro - Personal Computer](#) (How to install and license ArcGIS Pro on a personal computer)

Existing ArcGIS Online users have a couple of options; continue to use their existing Esri Account or create a new Esri Account accessible through their University IT login. For details, please see the '[ArcGIS – Esri Account Options](#)' article.

For students who are unable to run ArcGIS Pro on their home computers, shared access to a campus computer via a remote connection will be available. For remote access, students will require a Windows or Mac-based computer and a reliable broadband connection. Details on how to schedule time on a shared computer using a remote desktop session will be provided at the beginning of the course.

Resources and Writing support

Please note writing support resources provided by the Student Success Centre <https://ucalgary.ca/ssc/resources/writing-support> and the library <https://libguides.ucalgary.ca/guides/>

University of Calgary Academic Integrity Policy

Academic integrity is the foundation of the development and acquisition of knowledge and is based on values of honesty, trust, responsibility, and respect. We expect members of our community to act with integrity. 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: <https://www.ucalgary.ca/legal-services/university-policies-procedures/student-academic-misconduct-procedure>

For students wishing to know more about what constitutes plagiarism and how to properly cite the work of others, the Department of Geography recommends that they attend Academic Integrity workshops offered through the Student Success Centre: <https://www.ucalgary.ca/student-services/student-success/learning/academic-integrity>

Instructor Intellectual Property

Information on Instructor Intellectual Property can be found at <https://www.ucalgary.ca/legal-services/university-policies-procedures/intellectual-property-policy>

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 digitally through Microsoft Teams. Grades and assignments will not be available at the Department of Geography's main office and assignments cannot be dropped off at the Department 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: <https://www.ucalgary.ca/pubs/calendar/current/b-6-1.html>

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:

<https://www.ucalgary.ca/legal-services/university-policies-procedures/accommodation-students-disabilities-procedure>

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: freeman@ucalgary.ca).

Use of internet and electronic devices in class

Use of internet and electronic devices is essential for this course. Use of devices for purposes not related to the course will not be tolerated.

Human subjects

Students will not be expected to participate as research subjects or conduct research on human subjects.

Guidelines for Teams Conferencing Sessions

Teams is a video conferencing program which will allow us to meet at specific times for a "live" video conference, so that we can have the opportunity to meet each other virtually and discuss relevant course topics as a learning community.

To help ensure Teams sessions are private, do not share Teams link or password with others, or on any social media platforms. Teams' links and passwords are only intended for students registered in the course. Teams' recordings and materials presented in Teams, including any teaching materials, must not be shared, distributed, or published without the instructor's permission.

The use of video conferencing programs relies on participants to act ethically, honestly and with integrity; and in accordance with the principles of fairness, good faith and respect (as per the [Code of Conduct](#)). When entering Teams, you play a role in helping create an effective, safe and respectful learning environment.

Please be mindful of how your behavior in these sessions may affect others. Participants are required to use names officially associated with their UCID (legal or preferred names listed in the Student Centre) when engaging in these activities.

Instructors/moderators can remove those whose names do not appear on class rosters. Non-compliance may be investigated under relevant University of Calgary conduct policies (e.g., Student Non-Academic Misconduct Policy). If participants have difficulties complying with this requirement, they should email the instructor of the class explaining why, so the instructor may consider whether to grant an exception, and on what terms.

If you are unable to attend a Teams session, please contact your instructor to arrange an alternative activity for the missed session (e.g., to review a recorded session). Please be prepared, as best as you are able, to join class in a quiet space that will allow you to be fully present and engaged in Teams sessions. Students will be advised by their instructor when they are expected to turn on their webcam (for group work, presentations, etc.).

The instructor may record online Teams class sessions for the purposes of supporting student learning in this class – such as making the recording available for review of the session or for students who miss a session. Students will be advised before the instructor initiates a recording of a Teams session. These recordings will be used to support student learning only and will not be shared or used for any other purpose.

Media Recording (if applicable)

Optional meetings will occur throughout the course to allow for face-to-face discussions and Q&A. These meetings will be recorded in Teams. Students can opt out or shut off their cameras & mics.

Course evaluations and student feedback

Student feedback will be sought at the end of the course through the standard University Student Ratings of Instruction (USRI) and Faculty course evaluation forms.

Accessibility

All recorded lectures or demonstrations will be done in YuJa, with the auto-captioning turned on. This will allow students to access the information using both visual and auditory modes.

Copyright Legislation

All students are required to read the University of Calgary policy on Acceptable Use of Material Protected by Copyright <https://www.ucalgary.ca/legal-services/university-policies-procedures/acceptable-use-material-protected-copyright-policy> 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/>).

Students requiring assistance are encouraged to email the **Student at Risk line** if they or others appear to need wellness assistance: sar@ucalgary.ca For more immediate response, please call: 403-210-9355 and select option #2.

Sexual Violence Policy

The University recognizes that all members of the University Community should be able to learn, work, teach and live in an environment where they are free from harassment, discrimination, and violence. Please see the policy available at <https://www.ucalgary.ca/legal-services/university-policies-procedures/sexual-and-gender-based-violence-policy>

Contact Information for Student and Faculty Representation

- Student Union VP Academic 403-220-3911, suypaca@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/

Emergency Evacuation/Assembly Points

Assembly points for emergencies have been identified across campus. Assembly points are designed to establish a location for information updates from the emergency responders to the evacuees; from the evacuated population to the emergency responders. For more information, see the University of Calgary's Emergency Management website: <https://www.ucalgary.ca/risk/emergency-management>

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.