



Course Title: Geographic Information Systems for Environmental Design			
Course Number	EVDP 611		
Instructor Name	Kwangyul Choi	Instructor Email	kwangyul.choi1@ucalgary.ca
Office Location	SH 300	Office Hour	By appointment
TA Name	Karly Do	TA Email	ktado@ucalgary.ca
TA Name	Jie Li	TA Email	jie.li1@ucalgary.ca
Class Dates	Winter 2020, Monday or Wednesday		
Class Times	9:00 AM to 12:00 PM		
Class Location	SAPL Computer Room		

Course Information / Description of the Course

This course offers students an opportunity to develop skill in geographic information systems (GIS) and their applications to environmental design questions. The laboratory-centred course takes a hands-on approach to learning with several student projects that address authentic problems in urban planning, regional planning and landscape design. The main emphasis of the course is on the use of GIS tools and the interpretation of findings. Relevant theory is discussed in order to support effective application of these tools. The course assumes no background in GIS and begins by examining a range of basic operations on spatial data to support cartography, proceeding to more advanced manipulations of these data to perform spatial analyses of sites, neighbourhoods, communities, regions and landscapes. The intent is to offer students broad exposure to applications of spatial information relevant to environmental design, and includes operations on data representing urban, demographic and environmental phenomena, in the forms of vector and raster datasets, digital elevation models (DEMs), and road networks.

Learning Resources

Recommended Textbook:

Krygier, J., and Wood, D. 2016. Making Maps: A visual guide to map design for GIS. 3rd edition. Guilford Press, New York. This is an excellent cartography and design reference book. It is available at several online retailers. Opt for the **third edition**, as earlier ones are not as good. While likely to be useful, it is not a required text.

Technology requirements:

A series of *How to* guides will be posted on D2L.

Course Learning Outcomes

At the end of this course, students will be able to:

1. develop an **empirical evidence-based** orientation when undertaking planning and design decisions and assess the quality of evidence that may be used in professional work.
2. understand selected **concepts in geography, cartography, spatial analysis, and network analysis** that are relevant to planning and designing at a variety of scales.
3. assess **the characteristics of sites, the suitability of sites, and the need for design interventions at neighbourhood, community, regional and landscape scales.**
4. use **spatial analytical techniques** to prepare quantitative and cartographic empirical evidence upon which to base planning and design decisions.
5. develop **confidence to obtain, handle, and manipulate spatial data** using mainstream GIS technologies for the purposes of cartographic representation and spatial analysis.

Assessment (%)	Description	Aligned Course Learning Outcome
ArcMap portfolio (25%)	Create a portfolio that assembles evidence of in-class experimentation with ArcMap cartographic and basic spatial analysis tools. The product will be a collection of map artifacts that meet certain criteria that will be provided. These maps will be associated with text that describe the process used to create the map and interpret what it shows. Full instructions will be provided on an assignment sheet distributed in class. (Due: before 9:00 am, electronically on D2L as a single PDF on Monday, February 10th for L01 or Wednesday, February 12th for L02)	1, 2, 3, 4, and 5
Physiographic site analysis (20%)	Working with digital elevation data perform a site analysis, and prepare a short report describing the findings. Full instructions will be provided on an assignment sheet distributed in class. (Due: before 9:00 am, electronically on D2L as a single PDF on Monday, March 2nd for L01 or Wednesday, March 4th for L02)	1, 2, 3, 4, and 5
School walkshed infographic (15%)	Perform analyses of school walksheds using a variety of tools and present quantitative comparisons of the properties of these areas in the form of a small poster infographic. Full instructions will be provided on an assignment sheet distributed in class. (Due: before 9:00 am, electronically on D2L as a single PDF on Monday, March 23rd for L01 or Wednesday, March 25th for L02)	1, 2, 3, 4, and 5
Site selection report (40%)	Given a scenario for the selection of a site, students will prioritize the factors that are necessary to meet the client's expectations and assemble spatial data inputs in order to perform multi-criteria decision analyses. The product of this decision-support exercise will be a report to the client recommending a site, complete with cartographic and other empirical evidence. Full instructions will be provided on an assignment sheet distributed in class. (Due: Wednesday, April 15th before 4:00 pm, in print, at SAPL Main Office for BOTH sections)	1, 2, 3, 4, and 5

Assessment and Evaluation Information

The course evaluation will be based on four assessments, which are described in the previous page. Complete details for these assignments as well as assessment criteria will be provided in class when the assignment is first introduced. All assignments will be done individually.

Attendance and Participation Expectations:

Class time will be provided to develop the skill necessary to complete these assignments. There will also be time reserved to complete them with coaching assistance of the instructor and TA. It is strongly encouraged to attend all classes.

Guidelines for Submitting Assignments:

The first three assignments (ArcMap portfolio, physiographic site analysis, and school walkshed infographic) need to be submitted electronically on D2L as a single PDF as specified in the previous page. The final project (Site selection report) needs to be submitted as a hard copy to SAPL Main Office for Both sections.

Final Examinations:

There will be no final examination.

Late Assignments:

In order to be fair to all students, assignments submitted after the deadline will be assessed using the rubric, the mark converted to a percent, and then **10% deducted** from the assignment total. Thank you for your help in avoiding this uncomfortable situation. If you find yourself in an emergency that you could not have planned for, and that you believe warrants an exception, please contact the instructor.

Notes:

Final grades will be reported as letter grades, with the final grade calculated according to the 4-point range. All assignments will be evaluated by percentage grades, with their letter grade equivalents as shown

Grading Scale

Grade	Grade Point Value	4-Point Range	Percent	Description
A+	4.00	4.00	95-100	Outstanding - evaluated by instructor
A	4.00	3.85-4.00	90-94.99	Excellent - superior performance showing comprehensive understanding of the subject matter

A-	3.70	3.50-3.84	85-89.99	Very good performance
B+	3.30	3.15-3.49	80-84.99	Good performance
B	3.00	2.85-3.14	75-79.99	Satisfactory performance
B-	2.70	2.50-2.84	70-74.99	Minimum pass for students in the Faculty of Graduate Studies
C+	2.30	2.15-2.49	65-69.99	All final grades below B- are indicative of failure at the graduate level and cannot be counted toward Faculty of Graduate Studies course requirements.
C	2.00	1.85-2.14	60-64.99	
C-	1.70	1.50-1.84	55-59.99	
D+	1.30	1.15-1.49	50-54.99	
D	1.00	0.50-1.14	45-49.99	
F	0.00	0-0.49	0-44.99	

Topic Areas & Detailed Class Schedule		
Course Schedule Date	Topic	Assignments/Due Dates
January 13 or 15	Introduction to GIS, data types and projections	
January 20 or 22	Cartography I	
January 27 or 29	Analysis of spatial relationships	
February 3 or 5	Cartography II & III	
February 10 or 12	Physiographic site analysis I	ArcMap Portfolio (due before 9:00 am on D2L on day of class)
February 17 or 19	No classes – term break	
February 24 or 26	Physiographic site analysis II	
March 2 or 4	Service area analysis I	Physiographic site analysis (due before 9:00 am on D2L on day of class)
March 9 or 11	No classes – SAPL block week	
March 16 or 18	Service area analysis II	
March 23 or 25	Multi-criteria decision analysis I	School walkshed infographic (due before 9:00 am on D2L on day of class)
March 30 or April 1	Multi-criteria decision analysis II	
April 6 or 8	Instructional input as required to support final project	

April 15	No classes	Site selection report (due before 4:30 pm at SAPL main office)
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Media and Recording in Learning Environments

Part 1

University Calendar: <https://www.ucalgary.ca/pubs/calendar/current/e-6.html>

Recording of lectures (other than audio recordings that are pre-arranged as part of an authorized accommodation) is not permitted.

Students may not record any portion of a lecture, class discussion or course-related learning activity without the prior and explicit written permission of the course instructor or authorization from Student Accessibility Services. For any other use, whether by duplication, transcription, publication, sale or transfer of recordings, written approval must be obtained from the instructor for the specific use proposed. Any use other than that described above constitutes academic misconduct and may result in suspension or expulsion.

Part 2

The instructor may use media recordings to capture the delivery of a lecture. The instructor will notify all students and guests in the class that the event is being recorded. If a student or guest wants to take steps to protect privacy, and does not want to be recorded, the instructor will provide the individual (s) with an alternative means of participating and asking questions (e.g., passing written notes with questions). Students cannot be penalized for choosing not to be recorded in situations where participation is part of the course. Students must be offered other ways of earning participation credit that do not involve recording. Any video-recording would be intended to only capture the instructor and the front of the classroom. Students/other participants would not necessarily be visible on video recordings.

University of Calgary Policies and Supports

ACADEMIC ACCOMMODATION

Students seeking an accommodation based on disability or medical concerns should contact Student Accessibility Services; SAS will process the request and issue letters of accommodation to instructors. For additional information on support services and accommodations for students with disabilities, visit www.ucalgary.ca/access/. Students who require an accommodation in relation to their coursework based on a protected ground other than disability should communicate this need in writing to their Instructor. The full policy on Student Accommodations is available at <http://www.ucalgary.ca/policies/files/policies/student-accommodation-policy.pdf>.

ACADEMIC MISCONDUCT

Plagiarism involves submitting or presenting work in a course as if it were the student's own work done expressly for that particular course when, in fact, it is not. Most commonly plagiarism exists when: (a) the work submitted or presented was done, in whole or in part, by an individual other than the one submitting or presenting the work, (b) parts of the work are taken from another source without reference to the original author, (c) the whole work (e.g., an essay) is copied from another source, and/or, (d) a student submits or presents

work in one course which has also been submitted in another course (although it may be completely original with that student) without the knowledge of or prior agreement of the instructor involved. While it is recognized that scholarly work often involves reference to the ideas, data and conclusions of other scholars, intellectual honesty requires that such references be explicitly and clearly noted. Plagiarism is an extremely serious academic offence. Any suspicion of plagiarism will be reported to the Dean, and dealt with as per the regulations in the University of Calgary Graduate Calendar.

For information on academic misconduct and its consequences, please see the University of Calgary Calendar at <http://www.ucalgary.ca/pubs/calendar/current/k.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 disciplined under the Non-Academic Misconduct Policy.

FREEDOM OF INFORMATION AND PROTECTION OF PRIVACY

Student information will be collected in accordance with typical (or usual) classroom practice. Students' assignments will be accessible only by the authorized course faculty. Private information related to the individual student is treated with the utmost regard by the faculty at the University of Calgary.

UNIVERSITY STUDENT APPEALS OFFICE: If a student has a concern about the course, academic matter, or a grade that they have been assigned, they must first communicate this concern with the instructor. If the concern cannot be resolved with the instructor, the student can proceed with an academic appeal, which normally begins with the Faculty. <https://ucalgary.ca/student-appeals/>

More student support and resources (e.g. safety and wellness) can be found here:

<https://www.ucalgary.ca/registrar/registration/course-outlines>