



COURSE OUTLINE
ADVANCED TOPICS IN GEOGRAPHIC INFORMATION SCIENCE

Instructor: Dr. Chris Bone

Office Hours: Mondays 1:00pm – 2:00pm DTB A237 and by appointment

Contact: chrisbone@uvic.ca

Teaching Assistant: Leah Fulton

Office Hour: Tuesdays 2:00pm – 4:00pm Room DTB B206

Contact: leahfulton@uvic.ca

*** Please note that we typically only respond to emails during 8:00am to 5:00pm Mondays to Fridays**

COURSE DESCRIPTION

This course serves as a fourth-year capstone course in Geomatics, with specific attention paid to designing, managing, and delivering a geospatial project to a professional client. Students will learn new geospatial technologies related to artificial intelligence, web services, and 3D modelling, and will have an opportunity to integrate these technologies with their existing GIS knowledge on available tools and software. Students will also learn how to develop a professional geospatial presence by forming a consulting company, developing business plans and budgets related to geospatial projects, and presenting project goals and outcomes to a client. Lectures will focus on the theory and background to various methods, technologies and business strategies, while the labs will provide students an opportunity to put these skills into practice in a professional group setting.

KEY THEMES: geospatial technologies, GeoAI, GIS web services, digital twins, geo-consultancy.

REQUIRED TEXTS

Links to all readings will be provided in Brightspace

LEARNING OUTCOMES

- Design and create a geospatial digital twin for improving a client's operations
- Utilize artificial intelligence and machine learning for analyzing patterns or predicting locations
- Develop 3D representations of spatial features
- Design and create GIS web services for displaying and sharing geospatial data and information
- Learn how to work with a client in a group setting for providing targeted geospatial deliverables

EVALUATION AND DEADLINES/DATES

Assignment	Due Date	Percentage
Individual		
Resume	January 14th at 11:59pm	5%
Geospatial Project Pyramid	January 21st at 11:59pm	5%
GeoAI Opportunities and Challenges	January 28th at 11:59pm	5%
Geospatial Software Scan	March 3rd at 11:59pm	5%
Geospatial Industry Scan	March 17th at 11:59pm	5%
Group		
Business Plan	February 11th at 11:59pm	10%
Proposal 1st Draft	February 18th at 11:59pm	5%
Proposal 2nd Draft	March 10th at 11:59pm	10%
Presentation	April 8th at 11:59pm	10%
Geodatabase	April 12th at 11:59pm	20%
Final Report	April 12th at 11:59pm	20%

NOTE: Students will not be given an opportunity to submit any additional work for extra grades.

GRADING SYSTEM

As per the Academic Calendar:

Grade	Grade point value	Grade scale	Description
A+ A A-	9 8 7	90-100% 85-89% 80-84%	Exceptional, outstanding and excellent performance. Normally achieved by a minority of students. These grades indicate a student who is self-initiating, exceeds expectation and has an insightful grasp of the subject matter.
B+ B B-	6 5 4	77-79% 73-76% 70-72%	Very good, good and solid performance. Normally achieved by the largest number of students. These grades indicate a good grasp of the subject matter or excellent grasp in one area balanced with satisfactory grasp in the other area.
C+ C	3 2	65-69% 60-64%	Satisfactory, or minimally satisfactory. These grades indicate a satisfactory performance and knowledge of the subject matter.
D	1	50-59%	Marginal Performance. A student receiving this grade demonstrated a superficial grasp of the subject matter.
F	0	0-49%	Unsatisfactory performance. Wrote final examination and completed course requirements; no supplemental.
N	0	0-49%	Did not write examination or complete course requirements by the end of term or session; no supplemental.

WEEKLY CALENDAR

WEEK	DATE	
1	January 8	Course Introduction
2	January 15	Geospatial Digital Twins
3	January 22	Advanced GIS Analysis
4	January 29	GeoAI
5	February 5	Geo-consultancy
6	February 12	Proposals and Pitches
7	February 19	Reading Break – No lecture
8	February 26	Geospatial Data Storage and Sharing
9	March 4	The GIS Software Marketplace
10	March 11	Web Mapping and Portals
11	March 18	The Geospatial Workforce
12	March 25	Finalizing Projects
13	April 1	Holiday – No lecture
14	April 8	Final Pitches

January 24

Last day for adding courses that begin in the first term

February 29

Last day for withdrawing from course without penalty of failure

GEOGRAPHY DEPARTMENT INFO

- Geography Department website: uvic.ca/socialsciences/geography/
- Geography Department Chair: geogchair@uvic.ca
- Geography Undergraduate Advising: geogadvising@uvic.ca

BRIGHTSPACE

Please visit your BrightSpace site to access the website for Geog 104: Our Digital Earth

POLICY ON LATE ASSIGNMENTS

Assignments will be accepted one day (24 hours) past the due date accompanied with a 10% late penalty. Assignments will not be accepted after this time, but students will still be able to obtain a grade if they participate in the peer assessment portion of the assignment.

ACADEMIC INTEGRITY

It is every student's responsibility to be aware of the university's policies on academic integrity, including policies on **cheating, plagiarism, unauthorized use of an editor, multiple submission, and aiding others to cheat.**

Policy on Academic Integrity: web.uvic.ca/calendar2019-09/undergrad/info/regulations/academic-integrity.html

If you have any questions or doubts, talk to me, your course instructor. For more information, see uvic.ca/learningandteaching/cac/index.php.

ACCESSIBILITY

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a documented disability or health consideration that may require accommodations, please feel free to approach me and/or the Centre for Accessible Learning (CAL as soon as possible <https://www.uvic.ca/services/cal/>). The RCSD staff is available by appointment to assess specific needs, provide referrals, and arrange appropriate accommodations. The sooner you let us know your needs, the quicker we can assist you in achieving your learning goals in this course.

POSITIVITY AND SAFETY

The University of Victoria is committed to promoting, providing and protecting a positive and safe learning and working environment for all its members.

SEXUALIZED VIOLENCE PREVENTION AND RESPONSE AT UVIC

UVic takes sexualized violence seriously, and has raised the bar for what is considered acceptable behaviour. We encourage students to learn more about how the university defines sexualized violence and its overall approach by visiting uvic.ca/svp. If you or someone you know has been impacted by sexualized violence and needs information, advice, and/or support please contact the sexualized violence resource office in Equity and Human Rights (EQHR). Whether or not you have been directly impacted, if you want to take part in the important prevention work taking place on campus, you can also reach out:

Where: Sexualized violence resource office in EQHR; Sedgewick C119

Phone: 250.721.8021

Email: svpcoordinator@uvic.ca

Web: uvic.ca/svp

RESOURCES FOR INTERNATIONAL STUDENTS

The University of Victoria offers a number of resources to support international students as they pursue their studies. UVic's [International Centre for Students](#) is the primary office supporting international students on campus at the university-wide level and provides various supportive program through the [UVic Global Community Initiative](#), including a Mentorship Program and Conversation Partner Program. For academic advising-related questions, students in the Geography Department are also encouraged to meet with the Geography Undergraduate Advisor (geogadvising@uvic.ca) as well as an academic advisor in the [Academic Advising Centre](#) early in their studies to help map out a plan to declare a major and complete university program requirements. Other resources include the [Centre for Academic Communication](#) and the [Math and Stats Assistance Centre](#). International students are also encouraged to contact the International Student Liaison in Geography (Prof. CindyAnn Rose-Redwood, cindyann@uvic.ca), who can assist in making connections with other international and domestic students in the Geography Department and share opportunities for getting involved in departmental activities more broadly.

COURSE EXPERIENCE SURVEY (CES)

I value your feedback on this course. Towards the end of term, as in all other courses at UVic, you will have the opportunity to complete an anonymous survey regarding your learning experience (CES). The survey is vital to providing feedback to me regarding the course and my teaching, as well as to help the department improve the overall program for students in the future. The survey is accessed via MyPage and can be done on your laptop, tablet, or mobile device. I will remind you and provide you with more detailed information nearer the time but please be thinking about this important activity during the course.

DISCLAIMER

The schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances.

NOTE:

A note to remind you to take care of yourself. Do your best to maintain a healthy lifestyle this semester by eating well, exercising, getting enough sleep and taking some time to relax. This will help you achieve your goals and cope with stress. All of us benefit from support during times of struggle. You are not alone.

Counselling Services - *Counselling Services can help you make the most of your university experience. They offer free professional, confidential, inclusive support to currently registered UVic students. uvic.ca/services/counselling/*

Health Services - *University Health Services (UHS) provides a full service primary health clinic for students, and coordinates healthy student and campus initiatives. uvic.ca/services/health/*

Centre for Accessible Learning - *The CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations uvic.ca/services/cal/. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.*

Elders' Voices - *The Office of Indigenous Academic and Community Engagement (IACE) has the privilege of assembling a group of Elders from local communities to guide students, staff, faculty and administration in Indigenous ways of knowing and being. uvic.ca/services/indigenous/students/programming/elders/index.php*

We acknowledge and respect the lək'wəŋən peoples on whose traditional territory the university stands and the Songhees, Esquimalt, and WSÁNEĆ peoples whose historical relationships with the land continue to this day.