
CIVE299 – Geomatics Engineering**Term – Fall 2020 (202009)**

We acknowledge with respect the Lekwungen 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.

Instructor name

Phone: 250 808-1776

E-mail: hsteiner@uvic.ca

Office: ECS319 & Online (TBD)

Office Hours

Days: Wednesday

Time: 5:00-6:00pm

Location: ECS319 & Online (TBD)

Prerequisites:

- MATH 100 or MATH 109;
- ENGR 110 or ENGR 112

NOTE: The mandatory survey camp will be postponed into 2021 as well as PART B (survey exam) of the final exam (see additional info under “Assessment”).

Course Objectives

Comfort, fluidity and knowledge of the fundamentals of field surveying, GPS, GIS software and data sources of as they relate to professional geomatics engineering

Learning Outcomes

- Describe the principles of GIS, remote sensing, LIDAR, GPS and field surveying
- Understand the civil engineering applications of geomatics engineering
- Compute rectangular and polar coordinates on a simple plane, areas of closed polygons and earthwork volumes *
- Carry out field measurements for a leveling loop and produce a scaled topographic plan using a total station *
- Acquire diverse geomatics data and evaluate its quality and appropriateness
- Use GIS software to analyze raster and vector data
- Understand LiDAR data manipulation software to classify and visualize LiDAR point cloud data
- Creatively problem-solve complex spatial problems by analytically ‘thinking with maps’

*Part of the survey lecture and field exercises taught in 2021

Syllabus

A-Section(s): A01/CRN 10590 LECTURE

Days: Wednesday

Time: 6:00 pm - 7:20 pm

Location: Fully online; real time & pre-recorded

Lecture sessions are taught either online or are available as a pre-recorded video & posted every Monday before a course lecture. The main course lecturer is available online to answer questions during the posted lecture times (no emails will be answered) and office hours.

Required Text

Title: GIS Fundamentals (Sixth Edition)
Author: Paul Bolstad
Publisher: XanEdu Publishing, Inc.
Year: 2019

Optional text

Assessment

Lab Assignments	10 %	Due Dates: The following week before next lab/lecture begin
Survey Lab/Assignments:	20%	Due Dates: TBD in 2021 (March)*
Student Project:	10%	Due Date: 25 –November 2020
Final Exam:	60%	Date: TBD**

*Survey Labs will take place in 2021

** The final exam will be split into two parts. Part A of the exam (Geomatics Engineering) will be held online during the examination period in December 2020 (date TBD). The surveying Part B will be held at the end of the survey portion of the course taught in March 2021. Both exam portions are weighed equally (Part A=30%; Part B=30%) and contribute 60% to the overall course grade. Students must achieve a passing grade ($\geq 50\%$) in both the surveying exam (Part B) and the geomatics exam (Part A) in order to pass the course

Assignments:

Assignment#	Module	Start	End	DUE
1: Geomatics Engineering and me	A01/10590 Lecture (Online & Recording)	9-Sep-20	16-Sep-20	6:00pm (course spaces)
2: Coordinate Systems and Making maps	B01 /10591 LAB 2 (Online & Recording)	29-Sep-20	6-Oct-20	2:30pm (course spaces)
2: Coordinate Systems and Making maps	B02 /10592 LAB 2 (Online & Recording)	30-Sep-20	7-Oct-20	12:00 pm (course spaces)
3: Geomatics thinking and more maps	B01 /10591 LAB 3 (Online & Recording)	6-Oct-20	13-Oct-20	2:30pm (course spaces)

3: Geomatics thinking and more maps	B02 /10592 LAB 3 (Online & Recording)	7-Oct-20	14-Oct-20	12:00 pm (course spaces)
4: Putting it all together !	B01 /10591 LAB 4 (Online & Recording)	13-Oct-20	20-Oct-20	2:30pm (course spaces)
4: Putting it all together !	B02 /10592 LAB 4 (Online & Recording)	14-Oct-20	21-Oct-20	12:00 pm (course spaces)
5: Short Student Project draft submission (by team, 2-3 students)	A01/10590 Lecture (Online & Recording)	21-Oct-20	28-Oct-20	6:00pm (course spaces)
6: Student Project submission (Part A)	A01/10590 Lecture (Online & Recording)	28-Oct-20	25-Nov-20	6:00pm (course spaces)
6: Student project presentation (Part B)	A01/10590 Lecture (Online & Recording)	28-Oct-20	2-Dec-20	12:00-2:50pm & 6:00pm to 7:20pm (Online)

For the lab portion, three problem sets will be distributed over the course of the term via the CIVE 299 Course Space site. The assignment problems will require the use of ArcGIS software to complete. All assignments and projects should be completed and handed in with a partner (teams of 2 students) and will be graded together. All assignments and projects should be uploaded through Course Spaces. All lab assignments and projects are due before the next lab session the following week or at the date shown on Course Spaces or modified by the instructor or TA. The late penalty is 20% per day, starting at 12:05 on the due date (i.e. 20% will be deducted from an assignment handed in on the due day).

Laboratories:

Lab#	Module	Start
1	B01 /10591 LAB 1 (Online or pre-recorded), 2:30 pm - 5:20 pm ; Introduction to ArcGIS	22-Sep
1	B02 /10592 LAB 1 (Online or pre-recorded), 12:00 pm - 2:50 pm; Introduction to ArcGIS	23-Sep
2	B01 /10591 LAB 2 (Online or pre-recorded), 2:30 pm - 5:20 pm ; Coordinate systems and making maps	29-Sep
2	B02 /10592 LAB 2 (Online or pre-recorded), 12:00 pm - 2:50 pm; Coordinate systems and making maps	30-Sep
3	B01 /10591 LAB 3 (Online or pre-recorded), 2:30 pm - 5:20 pm ;Geomatics thinking and more maps	06-Oct
3	B02 /10592 LAB 3 (Online or pre-recorded), 12:00 pm - 2:50 pm; Putting it all together !	07-Oct
4	B01 /10591 LAB 4 (Online or pre-recorded), 2:30 pm - 5:20 pm ; Putting it all together !	13-Oct
4	B02 /10592 LAB 4 (Online or pre-recorded), 12:00 pm - 2:50 pm; Putting it all together !	14-Oct
5	B01 /10591 LAB 5 AVAILABLE (Online or pre-recorded), 2:30 pm - 5:20 pm ; Student Project	20-Oct

5	B02 /10592 LAB 5 (Online or pre-recorded), 12:00 pm - 2:50 pm; Student Project	21-Oct
6	B01 /10591 LAB 6 AVAILABLE (Online), 2:30 pm - 5:20 pm ;Student Project	27-Oct
6	B02 /10592 LAB 6 AVAILABLE ((Online), 12:00 pm - 2:50 pm; Student Project	28-Oct
7	B01 /10591 LAB 7 AVAILABLE ((Online), 2:30 pm - 5:20 pm ;Student Project	03-Nov
7	B02 /10592 LAB 7 AVAILABLE ((Online), 12:00 pm - 2:50 pm; Student Project	04-Nov
8	B01 /10591 LAB 8 AVAILABLE (Online), 2:30 pm - 5:20 pm ;Student Project	17-Nov
8	B02 /10592 LAB 8 AVAILABLE (Online), 12:00 pm - 2:50 pm; Student Project	18-Nov
9	B01 /10591 LAB 9 AVAILABLE (Online), 2:30 pm - 5:20 pm ;Student Project	24-Nov
9	B02 /10592 LAB 9 AVAILABLE (Online), 12:00 pm - 2:50 pm; Student Project	25-Nov
10	B01 /10591 LAB 10 AVAILABLE (Online), 2:30 pm - 5:20 pm ;Student Project	01-Dec
10	B02 /10592 LAB 10 AVAILABLE (Online), 12:00 pm - 2:50 pm; Student Project	02-Dec

Laboratories sessions are taught either online or are available as a pre-recorded video posted every Monday before a lab session. TA's are available to answer questions visible to other students during the above posted Lab times.

Tutorials

Will be held online or pre-recorded every Thursday 6:00pm to 6:50pm.

Projects:

The submission of a student project for a geomatics engineering related project will be of choice and in conjunction with a partner (Team of 2 students).

- A student proposal draft submission for each group (only one student needs to submit) is due on 28 October 6pm via course spaces .
- The final project proposal submission consists of Part A (document submission) and Part B (Power point presentation).
 - Part A should be in the form of an electronic document (pdf file) and be 2-5 pages long, including three main sections: 1) Project Description, 2) Objectives, and 3) Approach to a project. Final submission is the 25 November 6:00pm PDT via course spaces
 - Part B will be orally held in form of an online power point presentation (3-4 minutes) for each group. Due date is 02 Dec between 12:00-2:50pm & 6:00pm to 7:20pm (Online)
- All assignments and projects are due on the date as shown above unless modified on Course Spaces or modified by the instructor or TA.

NOTE:

- Failure to complete all laboratory requirements will result in a grade of N being awarded for the course
- Failure to pass one of the final exams (Part A= Geomatics Engineering; Part B : Surveying in 2021) will result in a failing grade for the course.

Course Withdrawal Deadlines:

- September 22: Withdrawal with 100% reduction of tuition fees
- October 13: Withdrawal with 50% reduction of tuition fees
- October 31: Last day for withdrawal (no fees returned)

The final grade obtained from the above marking scheme for the purpose of GPA calculation will be based on the percentage-to-grade point conversion table as listed in the current Undergraduate Calendar.

There will be no supplemental examination for this course.

Grading: Please see the Grading information in the current calendar at:

<https://www.uvic.ca/calendar/future/undergrad/index.php#/policies>

Course policies and guidelines

Late Assignments: No late assignments will be accepted unless prior arrangements have been made with the instructor **at least 48 hours before** the assignment due date.

Coursework Mark Appeals: All marks must be appealed **within 7 days** of the mark being posted.

Attendance: We expect students attend all lectures and labs. It is entirely the students' responsibility to recover any information or announcements presented in lectures from which they were absent.

Electronic devices in labs and lectures: No unauthorized *audio* or *video* recording of lectures is permitted.

Electronic devices in midterms and exams: Calculators are only permitted for examinations and tests if explicitly authorized and the type of calculator permitted may be restricted. No other electronic devices (e.g. cell phones, pagers, PDA, etc.) may be used during examinations or tests *unless explicitly authorized*.

Plagiarism: Submitted work may be checked using plagiarism detection software. Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult the link given below for the UVic policy on academic integrity. Note that the university policy includes the statement that "A largely or fully plagiarized assignment should result in a grade of F for the course."

Academic Integrity: You must make yourself aware of the University of Victoria guidelines and policy concerning fraud and academic integrity at this link, <https://www.uvic.ca/current-students/home/academics/academic-integrity/index.php>

Policy on Academic Integrity: <https://www.uvic.ca/calendar/future/undergrad/index.php#/policies>

Standards of Professional Behaviour: You are advised to read the Faculty of Engineering Document Standards for Professional Behaviour in current Undergraduate Calendar, which contains important information regarding conduct in courses, labs, and in the general use of facilities. Please find the document at this link:

<https://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf>

Notes to Students:

Students who have issues with the conduct of the course should discuss them with the instructor first. If these discussions do not resolve the issue, then students should feel free to contact the Chair of the Department by email or the Chair's Secretary to set up an appointment.

University of Victoria Privacy Policy: If any student has concerns about their private information being stored or accessed outside of Canada, they are required to inform the course instructor about their concerns before the end of second week of classes.

Accommodation of Religious Observance: See entry in current Undergraduate Calendar.

Equality: This course aims to provide equal opportunities and access for all students to enjoy the benefits and privileges of the class and its curriculum and to meet the syllabus requirements. Reasonable and appropriate accommodation will be made available to students with documented disabilities (physical, mental, learning) in order to give them the opportunity to successfully meet the essential requirements of the course. The accommodation will not alter academic standards or learning outcomes, although the student may be allowed to demonstrate knowledge and skills in a different way. It is not necessary for you to reveal your disability and/or confidential medical information to the course instructor. If you believe that you may require accommodation, the course instructor can provide you with information about confidential resources on campus that can assist you in arranging for appropriate accommodation. Alternatively, you may want to contact the Centre for Accessible Learning located in the Campus Services Building, <https://www.uvic.ca/services/cal/>.

The University of Victoria is committed to promoting, providing, and protecting a positive, and supportive 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 www.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: www.uvic.ca/svp

Policy on Inclusivity and Diversity: See the entry in the current Undergraduate Calendar.

Course Lecture Notes

Unless otherwise noted, all course materials supplied to students in this course have been prepared by the instructor and are intended for use in this course only. These materials are NOT to be re-circulated digitally, whether by email or by uploading or copying to websites, or to others not enrolled in this course. Violation of this policy may in some cases constitute a breach of academic integrity as defined in the UVic Calendar.

Syllabus statement

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.*

<https://www.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.* <http://www.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* <https://www.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.*

<https://www.uvic.ca/services/indigenous/students/programming/elders/index.php>

The **Office of the Ombudsperson** is an independent and impartial resource to assist with the fair resolution of student issues. A confidential consultation can help you understand your rights and responsibilities. The Ombudsperson can also clarify information, help navigate procedures, assist with problem-solving, facilitate communication, provide feedback on an appeal, investigate and make recommendations.

Phone: 250-721-8357; Email: ombuddy@uvic.ca; Web: uvicombudsperson.ca.