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**COURSE OUTLINE**

**Advanced Topics in Remote Sensing**

**Lecture: David Turpin Building DTB A110 18:30-20:20 Wednesdays**

**Lab: David Turpin Building DTB A251/253 9:30-12:20 Tuesdays online**

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**Office Hours: by appointment**

**Contact: ediloos@uvic.ca**

**COURSE DESCRIPTION**

This course is designed to expand your expertise in remote sensing technology and analytical methods by allowing you to integrate your knowledge of passive and active remote sensing with geography or any other Earth and biological sciences.

The focus of the course will be for you to lead a research project and work through a problem that can, at least in part, be addressed by remote sensing technology. Part of the exercise therefore will be to define a research question. This will be followed by an exploration of the methods that can be used to address this question. You will then be asked to isolate the remote sensing component of the solution to the question that you have asked.

You will be responsible for not only defining the research question, but also sourcing all the data you require to complete the project. Through lectures, scientific paper critiques, and class discussions, you will also gain exposure to advanced remote sensing principles and techniques to help broaden your knowledge of remote sensing and guide your use of data in your research project.

Lab time will be dedicated to research project work.

**LEARNING OUTCOMES**

1. Ability to analyze scientific publications
2. Ability to discuss scientific research
3. Ability to evaluate scientific output
4. Present scientific topics for class evaluation

**REQUIRED TEXT**

None officially, but consultation of any remote sensing textbook is strongly encouraged. For research project, scientific paper critiques, and class discussions you will be expected to make additional use of remote sensing texts, scientific journal articles, other material in the university libraries, and web-based information to support your work. Some readings will also be provided by the course instructor.

Recommended journals include: *Canadian Journal of Remote Sensing*, *Remote Sensing of Environment*, *Journal of Geophysical Research*, *IEEE Transactions on Geoscience and Remote Sensing*, *International Journal of Remote Sensing*.

## EVALUATION

Research Project Report	40%
Research Project Presentation	25%
Paper Critiques	25%
Class Discussions	10%

There is no final exam in this course.

Students must complete all evaluation components to obtain credit. Failure to complete any evaluation component without permission from the instructor will result in an 'N' grade.

## GRADING SYSTEM

As per the Academic Calendar:

Grade	Grade point value	Grade scale	Description
<b>A+</b> <b>A</b> <b>A-</b>	9 8 7	90-100% 85-89% 80-84%	<b>Exceptional, outstanding and excellent</b> 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> <b>B</b> <b>B-</b>	6 5 4	77-79% 73-76% 70-72%	<b>Very good, good and solid</b> 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.
<b>C+</b> <b>C</b>	3 2	65-69% 60-64%	<b>Satisfactory, or minimally satisfactory.</b> These grades indicate a satisfactory performance and knowledge of the subject matter.
<b>D</b>	1	50-59%	<b>Marginal</b> Performance. A student receiving this grade demonstrated a superficial grasp of the subject matter.
<b>F</b>	0	0-49%	<b>Unsatisfactory</b> performance. Wrote final examination and completed course requirements; no supplemental. <b>(Failing grade)</b>
<b>N</b>	0	0-49%	Did not write examination or complete course requirements by the end of term or session; no supplemental. <b>(Failing grade)</b>

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## DEPARTMENT OF GEOGRAPHY INFO

- Department of Geography website: [uvic.ca/socialsciences/geography/](http://uvic.ca/socialsciences/geography/)
- Geography Undergraduate Advising and Registration: [geogadvising@uvic.ca](mailto:geogadvising@uvic.ca)

## COURSESPACES

Lectures materials, assigned readings, and general course communications will be via CourseSpaces. You are required to come prepared for each lecture. This means you should have read and considered the assigned readings.

## REMOTE ACCESS TO LABS

You can access the labs remotely by using the Remote Desktop app through <https://remotelab.uvic.ca>. The Remote Desktop app is native to Windows, but you need to download for MacOS. Instructions can be found here: <https://www.uvic.ca/systems/facilities/remotelabaccess/remotelabhowto.php>.

You also access to file space (Z drive) on [\\geomatics.storage.uvic.ca\geomatics\<your netlink>](https://www.uvic.ca/systems/services/internettelephone/remoteaccess/index.php). If you need to mount the file space at home, then you will need to VPN into the university first through <https://www.uvic.ca/systems/services/internettelephone/remoteaccess/index.php>.

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## POLICY ON LATE ASSIGNMENTS

Late assignments will be penalized **20% per day** (including weekends and holidays). Exceptions will only be granted for medical reasons (requiring a written report from a medical practitioner stating your inability to attend class) or extreme personal crises. Please inform instructor of your situation promptly within five days. Only the course instructor can grant exceptions. Please do not try to negotiate exceptions with the TA.

## WEEKLY CALENDAR

WEEK	DATE	LECTURE
1	13 Jan	<b>Introduction</b>
2	20 Jan	Passive Remote Sensing
3	27 Jan	Active Remote Sensing
4	03 Feb	Sensors and Future Missions
5	10 Feb	Artificial Intelligence, Machine Learning, Deep Learning, Big Data, Google Earth Engine
6	17 Feb	<b>Reading Break</b>
7	24 Feb	Project Proposals
8	03 Mar	Guest Lecture
9	10 Mar	Class Discussions
10	17 Mar	Class Discussions
11	24 Mar	Class Discussions
12	31 Mar	<b>Project Presentations</b>
13	07 Apr	<b>Project Presentations</b>

## DISCLAIMER

The above schedule, policies, procedures, and assignments in this course are subject to change.

## **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/calendar/undergrad/info/regulations/academic-integrity.html](http://web.uvic.ca/calendar/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](http://uvic.ca/learningandteaching/cac/index.php).

Students are expected to complete assignments independently unless otherwise arranged.

## **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 ([uvic.ca/services/cal/](http://uvic.ca/services/cal/)). The CAL 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](http://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:

Sexualized Violence Resource Office in EQHR; Sedgewick C119

Phone: 250.721.8021

Email: [svpcoordinator@uvic.ca](mailto:svpcoordinator@uvic.ca)

Web: [uvic.ca/svp](http://uvic.ca/svp)

## **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.

## STUDENT WELLNESS

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.* <https://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. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.* <https://www.uvic.ca/services/cal/>

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>