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## COURSE OUTLINE

### Introduction to Remote Sensing

David Turpin Building A102 14:30-15:20 Mondays and Wednesdays

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**Office Hours: Wednesdays 13:00-14:00 or by appointment**

**Office Location:** DTB B122

**Contact:** [randy@uvic.ca](mailto:randy@uvic.ca)

## COURSE DESCRIPTION

The objective of this course will be to provide students with a conceptual and practical introduction to Remote Sensing (RS). We will explore air photos, remote sensing image processing and data formats in a digital environment, radiometric and geometric processing of satellite images, image enhancements, and image classification.

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## REQUIRED TEXT(S)

None. For laboratory assignments you will be expected to make additional use of remote sensing texts, journal articles, other material in the university libraries, & web-based information to support your work.

## RECOMMENDED TEXT(S)

1. Introductory Digital Image Processing. A Remote Sensing Perspective. 4th Edition. John R. Jensen.
  2. Computer Processing of Remotely-Sensed Images. 4th Edition. Paul M. Mather (available online: <http://voyager.library.uvic.ca/vwebv/holdingsInfo?bibId=3122540>)
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## LEARNING OUTCOMES

Theoretical: foundations of remote sensing. Technical: state-of-the-art software, image processing, and information extraction procedures. Practical: remote sensing and geospatial data analysis skills, remote sensing as a science and resource management tool, technical writing, knowledge communication.

## EVALUATION

Midterm Exam (Component A)	25%
Final Exam (Component A)	35%
Lab Assignments (Component B)	40%

To obtain a passing grade in the course (at least a "D"), students are required to pass both components of the course.

## 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>N</b>	0	0-49%	Did not write examination or complete course requirements by the end of term or session; no supplemental.

## GEOGRAPHY DEPARTMENT INFO

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

## BRIGHTSPACE

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

## LABS

There are 6 lab assignments. The labs are an essential part of the course and you are expected to have basic computer skills such as file maintenance, word processing, and conducting spreadsheet operations (e.g. Microsoft Excel). Attendance is required. All labs will be held in the Geomatics Lab A251/253. Each lab will explore unique aspects of remote sensing. Analysis and presentation of data, as well as preparation of synthesis reports, are valuable skills that will be developed as part of lab assignments. Time outside of regularly scheduled labs will be required to complete assignments, so plan accordingly.

Lab Website

<http://labs.geog.uvic.ca/geog228/>

user: geog228

pw: meris

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## **POLICY ON LATE ASSIGNMENTS**

Late lab assignments are subject to significant penalties: **20% per day following the due date and time.** All lab assignments must be submitted to be allowed to sit the final examination. Failure to submit a lab assignment will result in a failing grade of incomplete (N). 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. Only the course instructor can grant exceptions. Please do not try to negotiate exceptions with the TA.

## **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).

The instructor reserves the right to use plagiarism detection software programs to detect plagiarism in written assignments.

## **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:

Where: 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 online and can be done on your laptop, tablet, or mobile device. I will remind you and provide you with more information nearer the time but please be thinking about this important activity during the course.

## WEEKLY CALENDAR

WEEK	LECTURE DATES	Lecture Information [ <i>Lab Information</i> ]
1	W 8 Sep	Course Introduction [ <i>No Labs</i> ]
2	M 13 Sep, W 15 Sep	Remote sensing introduction, Air photos [ <i>Lab Intro/Lab1</i> ]
3	M 20 Sep, W 22 Sep	Air photos, Air photos [ <i>Lab 1</i> ]
4	M 27 Sep, W 29 Sep	Sensors and Imagery, Sensors and Imagery [ <i>No Labs</i> ]
5	M 4 Oct, W 6 Oct	Sensors and Imagery, Sensors and Imagery [ <i>Lab 2</i> ]
6	M 11 Oct, W 13 Oct	NO LECTURE (M), Radiometric Correction [ <i>Lab 2</i> ]
7	M 18 Oct, W 20 Oct	Radiometric Correction, MID TERM EXAM [ <i>Lab 3</i> ]
8	M 25 Oct, W 27 Oct	Geometric correction, Geometric correction [ <i>Lab 4</i> ]
9	M 1 Nov, W 3 Nov	Enhancements, Enhancements [ <i>Lab 5</i> ]
10	M 8 Nov, W 10 Nov	Enhancements, NO LECTURE (W) [ <i>No Labs</i> ]
11	M 15 Nov, W 17 Nov	Classification, Classification [ <i>Lab 6</i> ]
12	M 22 Nov, W 24 Nov	Classification, Classification [ <i>Lab 6</i> ]
13	M 29 Nov, W 01 Dec	Classification, Guest lecture [ <i>Lab Wrap Up</i> ]
14	M 6 Dec	Future of remote sensing

## DISCLAIMER

The above 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/](http://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/](http://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/](http://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](http://uvic.ca/services/indigenous/students/programming/elders/index.php)*