

**DEPARTMENT OF GEOGRAPHY - UNIVERSITY OF VICTORIA  
GEOGRAPHY 319 – REMOTE SENSING OF THE ENVIRONMENT**

**Instructor:** Dr. Maycira Costa  
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**Class time:** Tuesdays and Wednesday: 9:30 am –10:20 am

**Location:** CLE A302

**Office hours:** Tuesday, 2:00 pm – 3:00 pm

**Lab Instructors:** Terri Evans (tevens@uvic.ca)

**Course Objectives:**

- Introduce the basic physical principles of electromagnetic radiation in the environment and its application to remote sensing.
- Introduce principles of attenuation, absorption and scattering mechanisms.
- Introduce principles of interaction of energy (optical, microwave, thermal) with the atmosphere and Earth materials such as vegetation, soil, water, rock, and urban structures.

**Course Components**

Class Meetings Class will meet on a regular basis twice a week (see schedule above). Attendance in class is recommended to understand the topics, complete lab assignments, and to pass examinations. Lecture presentations can be downloaded from UVic's CourseSpace.

Username: your UVic Netlink-ID  
Password: your UVic Netlink-ID password

These files are intended as a supplement to the lectures. They are not intended to replace the lectures, although most of the material covered in the lectures is contained in the notes. I plan to post the pdf before the class starts.

Labs This course includes 3 lab reports (see schedule below) and one final Lab exam.

Examinations There will be three exams.

**Grading Scheme and date**

- Exam 1: 20%
- Exam 2: 20%

- Exam 3: 20%
- Lab report 1: 10%
- Lab report 2: 10%
- Lab report 3: 10%
- Lab final exam: 10%

### **Late Assignment**

Laboratory assignments are due in the scheduled days at the **beginning** of the scheduled lab time, any work handed in after that is considered late. The penalty for late assignments is 10% for the first 24 hour period, for every day after that, you will lose 25% per day. **All assignments must be submitted in order to be allowed to sit the final examination. Failure to submit an assignment will result in the grade of incomplete.** 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. Exceptions can only be granted by the course instructor.

**Text Book:** Jensen, J.R. (2011). Remote Sensing of the Environment: an Earth Resource Perspective. 2nd ed. Prentice-Hall, Inc., Upper Saddle River, New Jersey. 544 p

### **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.

## Tentative Course Schedule

Schedule for winter 2016			
Date	Lecture/lab	Topic	Required reading
Sept 9	Lecture 1	Goals and structure of the course. Remote sensing of the environment.	Chap 1
	<b>No Lab</b>		
Sept 15	Lecture 2	The Sun. Electromagnetic radiation.	Chap 2
Sept 16	Lecture 3	Electromagnetic radiation. Atmosphere	Chap 2
Sept 18	<b>Lab 1</b>	<b>Introduction to software and imagery</b>	
Sept 22	Lecture 4	Atmosphere attenuation mechanisms	Chap 2
Sept 23	Lecture 6	Energy-vegetation interactions	Chap 11
Sept 25	<b>Lab 2</b>	<b>Field trip to Cowichan Estuary – Friday Sept. 25<sup>th</sup> all students required to go</b>	
Sept 29	Lecture 7	Energy-vegetation interactions	Chap 11
Sept 30	Lecture 8	Energy-vegetation interactions	Chap 11
Oct 02	<b>Lab 3</b>	<b>Intro to ROI collection and spectral plots</b>	
Oct 06	Lecture 9	Satellites	Chap 7
Oct 07	Lecture 10	Energy-water interactions	Chap 12
Oct 9	<b>Lab 4</b>	<b>Atmospheric Correction</b>	
Oct 13	Lecture 11	<i>Exam 1</i>	
Oct 14	Lecture 12	Energy-water interactions	Chap 12
Oct 16	<b>Lab 5</b>	<b>Band simulation</b>	
Oct 20	Lecture 13	Energy-water interaction	Chap 12
Oct 21	Lecture 13	Energy-minerals interactions. Geology	Chap 14
Oct 23	<b>Lab 5</b>	<b>Band simulation</b>	
Oct 27	Lecture 14	Energy-minerals interactions. Geology	Chap 14
Oct 28	Lecture 15	Radar	Chap 9
Oct 30	<b>Lab 6</b>	<b>Spectral Analysis</b>	
Nov 03	Lecture 16	Radar	Chap 9
Nov 04	Lecture 17	<i>Exam 2</i>	
Nov 6	<b>Lab 7</b>	<b>Classification</b>	
Nov 10	No class	<i>Reading Break</i>	
Nov 11	No class	<i>Reading Break</i>	
Nov 13	<b>No labs</b>		
Nov 17	Lecture 18	Thermal Infrared	Chap 8
Nov 18	Lecture 19	Thermal Infrared	Chap 8
Nov 20	<b>Lab 7</b>	<b>Classification</b>	
Nov 24	Lecture 20	Urban	Chap 13
Nov 25	Lecture 21	Urban	Chap 13
Nov 27	<b>Lab</b>	<b>LAB EXAM</b>	
Dec 01	Lecture 22	<i>Review</i>	
Dec 02	Lecture 23	<i>Exam 3</i>	