

**DEPARTMENT OF GEOGRAPHY - UNIVERSITY OF VICTORIA  
GEOGRAPHY 319 – REMOTE SENSING OF THE ENVIRONMENT  
FALL 2014**

**Instructor:** Dr. Maycira Costa  
Office: DTB B126  
Phone: 721 7334  
e-mail: [maycira@uvic.ca](mailto:maycira@uvic.ca)

**Class time:** Tuesdays and Wednesday: 9:30 pm –10:20 pm  
**Location:** CLE A302 (Clearihue)

**Office hours:** Tuesday, 11:30 – 12:30 p.m

**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) 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 Moodle website at <http://moodle.uvic.ca>

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).

Examinations There will be a mid term and a final examination

## Grading Scheme and date

- Midterm (Oct 14, 2014): 25%
- Lab report 1: 10%
- Lab report 2: 15%
- Lab report 3: 15%
- Final exam (to be scheduled): 35%

**Late Assignment**

Laboratory assignments are due in the scheduled days at the beginning of the lab. We do not encourage completion of last week's assignments during a new lab period and a penalty for assignments handed in late during the next lab period is 10%. 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

**Grading Scale**

A+	A	A-	B+	B	B-	C+	C	D	F
90-	85-	80-	77-	73-	70-	65-	60-	50-	0-
100%	89%	84%	79%	76%	72%	69%	64%	59%	49%

## Tentative Course Schedule

Schedule for fall 2014			
Date	Lecture/lab	Topic	Required reading
Sept 03	Lecture 1	Goals and structure of the course. Remote sensing of the environment.	Chap 1
Sept 09	Lecture 2	The Sun. Electromagnetic radiation	Chap 2
Sept 10	Lecture 3	Electromagnetic radiation	Chap 2
	<b>Lab 1</b>	<b>Introduction to data analysis</b>	
Sept 16	Lecture 4	Atmosphere attenuation mechanisms	Chap 2
Sept 17	Lecture 5	Correction methods	Chap 2
	<b>Lab 2</b>	<b>Field trip to Cowichan Estuary – 19<sup>th</sup> all students required to go</b>	
Sept 23	Lecture 6	Energy-vegetation interactions	Chap 10
Sept 24	Lecture 7	Energy-vegetation interactions	Chap 10
	<b>Lab 3</b>	<b>ROI extraction/spectral plot</b>	
Sept 30	Lecture 8	Energy-vegetation interactions	Chap 11
Oct 01	Lecture 9	Energy-water interactions	Chap 11
	<b>Lab 4</b>	<b>Atmospheric Correction 1</b>	
Oct 07	Lecture 10	Energy-water interactions	Chap 11
Oct 08	Lecture 11	Energy-water interactions	Chap 12
	<b>Lab 4</b>	<b>Atmospheric Correction 2</b>	
Oct 14	<i>Mid-term</i>		
Oct 15	Lecture 12	Energy-water interactions	Chap 12
	<b>Lab 5</b>	<b>Band simulation</b>	
Oct 21	Lecture 13	Energy-minerals interactions. Geology	Chap 14
Oct 22	Lecture 14	Energy-minerals interactions. Geology	Chap 14
	<b>Lab 5</b>	<b>Band simulation</b>	
Oct 28	Lecture 15	Energy-urban structure interactions	Chap 13
Oct 29	Lecture 16	Radar	Chap 9
	<b>Lab 6</b>	<b>Spectral Analysis</b>	
Nov 04	Lecture 17	Radar	Chap 9
Nov 05	Lecture 18	<i>Guest speaker</i>	
	<b>Lab 7</b>	<b>Classification</b>	
Nov 11	No class	Reading Break	
Nov 12	No class	Reading Break	
	<b>No labs</b>		
Nov 18	Lecture 19	Thermal Infrared	Chap 8
Nov 19	Lecture 20	Thermal Infrared	Chap 8
	<b>Lab 7</b>	<b>Classification</b>	
Nov 25	Lecture 21	<i>Guest speaker</i>	
Nov 26	Lecture 22	<i>in situ</i> reflectance measurements	Chap 15
	<b>Lab</b>	Final Wrap up	
Dec 2	Lecture 23	<i>Guest speaker</i>	
Dec 3	Lecture 24	<b>Review</b>	