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: 13:30 –14:20 am
Location: MAC D283

Office hours: Wednesday, 3:00 – 4:00 p.m

Lab Instructors: Terri Evans (tevans@uvic.ca), Georgia Clyde (gclyde@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).

Examinations There will be a midterm and a final examination

Grading Scheme and date

- Midterm (Feb 24, 2015): 25%
- Final exam (to be scheduled): 35%
- Lab report 1: 5%

- Lab report 2: 15%
- Lab report 3: 20%

The grade breakdown follows the university convention:

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

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.

The Geomatics Teaching Laboratory (Social Sciences & Math A251/A253) is open daily from 8:30 am to 4:30 pm. Access to the Laboratory is restricted after 4:30 pm for Security purposes. You are encouraged to purchase an entry fob, which will enable you to gain access to that facility after hours. The cost of a card is $10.00 and you can keep it in case you take another course that uses the lab facilities. You will need to have a portable memory stick or flash drive (minimum of 8GB) for the lab portion of this course.

Lab Website: labs.geog.uvic.ca/geog319
User: geog319
Password: hyperspectral

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 fall 2014			
Date	Lecture/lab	Topic	Required reading
Jan 6	Lecture 1	Goals and structure of the course. Remote sensing of the environment.	Chap 1
Jan 7	Lecture 2	Dr. Bechara Saab – MarsOne Mission	
Jan 9	**No Lab**		
Jan 13	Lecture 3	Electromagnetic radiation	Chap 2
Jan 14	Lecture 4	Atmosphere attenuation mechanisms	Chap 2
Jan 16	**Lab 1**	**Introduction to data analysis**	
Jan 20	Lecture 6	Energy-vegetation interactions	Chap 11
Jan 21	Lecture 7	Energy-vegetation interactions	Chap 11
Jan 23	**Lab 2**	**Field trip to Cowichan Estuary - all students required to go**	
Jan 27	Lecture 8	Satellite platforms	Chap 7
Jan 28	Lecture 9	Energy-water interactions	Chap 12
Jan 30	**Lab 3**	**ROI extraction/spectral plot**	
Feb 03	Lecture 10	Energy-water interactions	Chap 12
Feb 04	Lecture 11	Energy-water interactions	Chap 12
Feb 6	**Lab 4**	**Atmospheric Correction**	
Feb 10	No class	Reading Break	
Feb 11	No class	Reading Break	
Feb 13	**No Lab**	Reading Break	
Feb 17	Lecture 12	Energy-water interactions; satellites	Chap 12
Feb 18	Lecture 13	Energy-minerals, soils interactions	Chap 14
Feb 20	**Lab 4**	**Band Simulation**	
Feb 24		***Midterm***	
Feb 25	Lecture 14	Energy-minerals interactions	Chap 14
Feb 27	**Lab 5**	**Spectral Analysis**	
March 03	Lecture 15	Radar	Chap 9
March 04	Lecture 16	Radar	Chap 9
March 6	**Lab 6**	**Spectral Analysis**	
March 10	Lecture 17	Radar	Chap 9
March 11	Lecture 18	Thermal Infrared	Chap 8
March 13		**Classification**	
March 17	Lecture 19	Thermal Infrared	Chap 8
March 18	Lecture 20	Thermal Infrared	Chap 8
March 20	**Lab 7**	**Classification**	
March 24	Lecture 21	Urban	Chap 13
March 25	Lecture 22	Lidar	Chap 10
March 27	**Lab 7**	**Lab Wrap Up**	
March 31	Lecture 23	Guest Talk	
April 1	Lecture 24	Final Wrap up - review	