

GEOG 308 – Principles of Remote Sensing

Course Outline

Theory Wed/Fri 11:35am – 12:55pm Burnside Hall 511	Instructor: Dr. Margaret Kalacska Email: margaret.kalacska@mcgill.ca
Open Laboratory: Mon: 2:35pm – 5:25pm	Office: Burnside Hall 622 Office hours: by appointment Phone: 398-4347

Course Overview

This class is a conceptual overview of remote sensing and the underlying physical principles. It covers ground-based, aerial and satellite systems, and the electromagnetic spectrum, from visible to microwave. Emphasis will be placed on applications of remotely sensed data in geography including land cover change and ecological processes with examples from other fields.

Co-requisite: GEOG 201 or permission of instructor

Required Textbook

Ryerson and Aronoff. *Why 'where' matters: Understanding and profiting from GPS, GIS, and Remote Sensing*. 2010. Kim Geomatics.

Recommended Textbook

Lillesand, Kiefer and Chapman. *Remote Sensing and Image Interpretation*, 6th Edition. 2008. John Wiley & Sons Inc.

Additional required readings throughout the term will be presented in the lectures and posted on WebCT

Evaluation

1. Lab Assignments: 30% (3 laboratory assignments, 10% each)
2. Quizzes: 10% (4, but only best 3 will count).
3. Midterm: 20%
4. Project proposal 5%
5. Project presentation 10%
6. Final project paper: 25%

No extra work will be accepted to supplement the grade obtained in the assignments, quizzes, midterm, or final project.

Course policies

1. Consistent attendance is expected. It is important to stay on top of the course material, including assigned readings and laboratory assignments. Remember you are learning new concepts and implementation of the concepts in a new software package.
2. Laboratories will begin on **September 14th**. Attendance to the open laboratory session is not compulsory but it is a three-hour block assigned for your course. Demonstrations of the key concepts for the laboratory assignments will happen at the beginning of these sessions, therefore, attendance is strongly encouraged.
3. Late assignments will be penalized by 10% cumulative per 24 hr period unless permission to miss the deadline has been received in writing from the instructor. Lab assignments will be handed in via MyCourses. Any assignment not uploaded by the due date **and** time (EST) is considered late. Technical issues that arise for students uploading work at the last minute are the solely responsibility of the student.
4. Excuses for a missed midterm exam will only be accepted in cases of medical necessity (physician's note required) or personal emergency. The midterm exam will be held during regular lecture hours in BH 511.
5. I strongly encourage office hour visits in lieu of email for questions regarding course material.

Mobile computing and communications devices (MC2):

The use of MC2 devices must, in all cases, respect policies and regulations of the University, including in particular the following:

1. *The [Code of Student Conduct and Disciplinary Procedures](#);*
2. *The [Policy Concerning the Rights of Students with Disabilities](#);*
3. *The [Policy on the Responsible Use of McGill IT Resources](#).*

*No audio or video recording of any kind is allowed in class without the explicit permission of the instructor. MC2 devices are not to be used for voice communication without the explicit permission of the instructor. MC2 devices are permitted in class insofar as their use does not disrupt the teaching and learning process. MC2 devices are **not** permitted during quizzes or the midterm examination.*

GEOG 308 – Principles of Remote Sensing

Class schedule (Wednesday / Friday)

NOTE: This outline may change based on class progress. *Classes with short in-class quiz.

Week	Date	Topic	Laboratory Assignments
1	Sept 9	Introduction	
	Sept 11	Concepts and Foundations	ENVI Tutorial handed out
2	Sept 16	Concepts and Foundations	
	Sept 18	Concepts and Foundations	
3	Sept 23	Multispectral satellite systems	
	Sept 25	Multispectral satellite systems	
4	Sept 30	Guest Lecture: Dr. Rachid Hedjam (Historical Document Analysis)	
	Oct 2	Guest Lecture: Dr. Cardille (Google Earth Engine)	
5	Oct 7	Image Preprocessing	Assignment 1 handed out (Due Oct 19)
	Oct 9	Aerial Photos*	
6	Oct 14	Bathymetry	
	Oct 16	Hyperspectral data and signatures	
7	Oct 21	Spectral Indices*	Assignment 2 handed out (Due Nov 2)
	Oct 23	Classification / Interpretation	
8	Oct 28	Classification / Validation / Change detection	
	Oct 30	Advanced Data Analysis and Thermal	
9	Nov 4	Thermal *	Assignment 3 handed out (Due Nov 16)
	Nov 6	LiDAR	Project Proposal Due
10	Nov 11	Midterm review	
	Nov 13	Midterm	
11	Nov 18	GISDay	
	Nov 20	Project Discussion *	
12	Nov 25	Term Project	
	Nov 27	Term Project	
13	Dec 2	Term Project	
	Dec 4	Term Project	Project Paper Due

Electronic Resources

Canada Centre for Remote Sensing. *Tutorial: Fundamentals of Remote Sensing*

Available as a downloadable PDF from:

http://ccrs.nrcan.gc.ca/resource/tutor/fundam/index_e.php

Supplemental readings will also be posted on WebCT. The material in these readings will not be directly examined but is intended as a resource for further study or clarification through examples.

Other matters

McGill University values academic integrity. Therefore all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see www.mcgill.ca/students/srr/honest/ for more information).

L'université McGill attache une haute importance à l'honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l'on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l'étudiant et des procédures disciplinaires (pour de plus amples renseignements, veuillez consulter le site www.mcgill.ca/students/srr/honest/)

In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded.

© Instructor generated course materials (e.g., handouts, notes, summaries, exam questions, etc.) are protected by law and may not be copied or distributed in any form or in any medium without explicit permission of the instructor. Note that infringements of copyright can be subject to follow up by the University under the Code of Student Conduct and Disciplinary Procedures.

In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.

If you have a disability please contact the instructor to arrange a time to discuss your situation. It would be helpful if you contact the Office for Students with Disabilities at 514-398-6009 before you do this.