



## GEOGRAPHY FINAL COURSE OUTLINE: FALL 2011

### GEOGRAPHY 603 H(3-3)

#### Remote Sensing: Basics and Beyond

Instructor: Mryka Hall-Beyer	Office: ES 458
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\*GEOG603 is offered in **online format only**. There is no scheduled lecture or lab periods. All lecture material is available on the course Blackboard site. Labs are carried out individually using student-purchased software. Lectures, lab instructions and all supplementary material will be available using the Blackboard online courseware system <http://www.blackboard.ucalgary.ca>. Communication is normally handled through email, Blackboard-based discussion boards and Skype. Students will be automatically enrolled on the course Blackboard site once they have registered for the course and activated their University of Calgary IT accounts. Students may, as they wish and are able, arrange group study or lab sessions within the constraints of plagiarism guidelines. If there are any questions, consult the professor via email.

#### Official Course Description

Introduction to the theory and practice of remote sensing. Topics include physics of remote sensing, sensor systems, resolutions, geometric and radiometric correction, image analysis (enhancements, filtering, texture analysis, principal components, classification approaches and algorithms and accuracy). May include specific image acquisition systems and their methodological requirements. Emphasis is on fundamental concepts. Laboratory provides experience with fundamental image processing techniques and project completion and writing.

#### Prerequisite

Consent of the Department.

**Students must have, or have access to, a computer able to install and run the required image processing software** (there is no Mac version and PC partitions on a Mac have not worked well in the past) **and have a connection able to upload and download large files.**

#### Supplementary Fees

N/A

#### Text(s)/Readings

1. Jensen, J.R. Introductory Digital Image Processing 3rd ed. (2004) Prentice-Hall. ISBN-10: 0131453610; ISBN-13: 978-0201508031.
2. Northey, M., D.B. Knight and D. Draper. 2010. Making Sense in Geography and Environmental Sciences: A Student's Guide to Research and Writing. Oxford University Press: ISBN 978-0-19-544002-7
3. Warner, T.A and D.J. Campagna. 2009. Remote sensing with IDRISI® Taiga: A Beginner's Guide. Hong Kong: Geocarto International. ISBN 978-962-8226-27-6. (<http://www.geocarto.com>). Order through this website but allow time for delivery.

4. Recommended for students wanting detailed technical information: J.A. Richards and X. Jia, Remote Sensing Digital Image Analysis: an Introduction.4th ed. 2005, Springer. ISBN-10 3-540-25128-6 or ISBN-13 978-3-540-25128-6.

### Software

All students need to purchase and install Idrisi Taiga® image processing software, student starter edition, available at:

<http://www.clarklabs.org/buy/buy-online.cfm?method=main.chooseProducts&type=new&cat=STUD>.

Detailed information is available on the course Blackboard site. Students are strongly advised not to use different image processing software, as all lecture demonstrations and labs are adapted to Taiga. Students electing to use different software will not receive technical support, and assignments will not be altered to accommodate their choice.

### Grading (Weighting)

Participation in online discussions, quizzes	10%
Formal labs: 4@10%	40%
Term Test:	10%
Essay:	15%
Lab-based final project: Proposal 3% + Report 22%	25%

### There is no final examination for this course

**To pass the course** all components listed above must be *completed*. The average of all grades must be passing, but it is *not necessary to pass* each component in order to pass the course as a whole. Students are reminded that at the graduate level, they must receive a B- to count the course towards their program.

### Grading System

Numerical grades and the final course letter grade will be awarded according to the following scheme. Grades awarded on a letter basis (see below) will be converted at the midpoint of the range (e.g. A+ will be averaged as 96)

94-100 A+	75-79.99 B	56-60.99 C-
88-93.99 A	70-74.99 B-	52-55.99 D+
84-87.99 A-	66-69.99 C+	50-51.99 D
80-83.99 B+	61-65.99 C	0-49.99 F

For material graded with letters, the following meaning is applied:

A+	Outstanding performance
A	Excellent-superior performance, showing comprehensive understanding of subject
A-	
B+	Good – solid understanding of the material
B	
B-	Marginally satisfactory performance at the graduate level – basic understanding of the subject.
C+	
C	Basic understanding of the subject; inadequate for further work at the graduate level.

C-

D+ Minimal Pass-marginal performance for undergraduate level  
D

F Fail - - poor performance

**For additional detailed course information posted by the Instructor see Blackboard at:**  
<http://blackboard.ucalgary.ca/>

### **Writing across the Curriculum**

Writing skills are not exclusive to English courses and, in fact, should cross all disciplines. Clear concise technical writing is essential to all aspects of a graduate level career and jobs requiring a graduate degree. At the level of this course, students are assumed to be familiar with the structure and conventions of scientific or technical writing; writing helps and specific instructions are provided on the course Blackboard site. Students are expected to do a substantial amount of writing in this course, and writing and the grading thereof is a major factor in the evaluation of student work; specifics are given in grading rubrics available on Blackboard. The services provided by the Writing Centre in the Effective Writing Office can be utilized by all students who require further assistance. These Centres help you to edit your work effectively; they do not provide an editing service: allow plenty of time. Students whose first language is not English are especially encouraged to make maximum use of these facilities.

### **Principles of Conduct**

The University of Calgary Calendar includes a statement on the Principles of conduct expected of all members of the University community (including students, faculty, administrators, any category of staff, practicum supervisors and volunteers) whether on or off the University's property. This statement applies in all situations where the members of the University community are acting in their University capacities. All Members of the University Community have a responsibility to familiarize themselves with this statement which is available at: <http://www.ucalgary.ca/pubs/calendar/current/j-2.html>

### **Plagiarism**

Academic dishonesty is not an acceptable activity at the University of Calgary and students are **strongly advised** to read the Student Misconduct section in the University Calendar. Quite often, students are unaware of what constitutes academic dishonesty or plagiarism. The most common are 1) presenting another student's work as your own 2) presenting an author's work or ideas as your own without proper referencing and 3) using work completed for another course without permission or adaptation. This activity will not be tolerated in this course and students conducting themselves in this manner will be dealt with according to the procedures outlined in the calendar. If a student is in any doubt about what constitutes plagiarism in a particular case, they should consult the professor at the earliest opportunity. In this online course, specific questions that arise about permitted collaboration and group study should be discussed on Blackboard in the appropriate forum.

### **Disability Resource Centre Accommodations**

If you are a student with a documented disability who may require academic accommodation and have not registered with the Disability Resource Centre (DRC), please contact their office at 403-220-8237. Students who have not registered with the Disability Resource Centre are not

eligible for formal academic accommodation. You are also required to discuss your needs with your instructor no later than fourteen (14) days after the start of this course.