

GEOGRAPHY 635 COURSE OUTLINE H (2-3) (AREA III)

ACTIVE MICROWAVE REMOTE SENSING

Timetable: WINTER 2007 Block Week (Jan 2-6) (9:00am to 4:30pm)

Earth Science 443 and UofC Weather Research Station and Soccer Field

Instructor:

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Course Assistants:

Torsten Geldsetzer, Ph.D. Candidate, Dept of Geography

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Course Synopsis:

This course takes a geoscientists view of theoretical and applied aspects of *active microwave* remote sensing for geophysical parameter estimation. Theoretical aspects will involve a discussion of synthetic aperture radar (SAR) and scatterometer sensor configuration, dielectric mixture modeling, microwave-surface interactions including microwave scattering (surface and volume) modeling and polarimetry. Applied aspects will focus on the use and analysis of surface based polarimetric microwave scatterometer data acquired from variable incidence angles at the Weather Station and dual and co-pol SAR data from the ENVISAT ASAR and the SeaWinds QuikScat Ku-band scatterometer. Computer-based laboratory work will involve sensitivity analyses and diagnostic use of dielectric mixture models, microwave scattering models and polarimetric workstation software for signal processing. The applied aspects (course project) will focus on scattering processes of bare frozen/unfrozen ground/soil with a dry/wet snow cover at the Weather Station and/or soccer field using our C-band polarimetric scatterometer.

Grading:

- *Course Project* = 40%
- *Critical Review of an Active Microwave Journal Paper* = 20%
- *Take Home Final Exam* = 40%

No Textbook Required

Reference Material:

TBA

Grading System:

96-100	A+	77-80	B	59-61	C-
90-95	A	71-76	B-	55-58	D+
86-89	A-	65-70	C+	50-54	D
81-85	B+	62-64	C	0-49	F

Plagiarism:

Academic dishonesty is not an acceptable activity at the University of Calgary and students are strongly advised to read the appropriate section in their Calendars (beginning on page 63). 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. 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.

Late Policy:

The term project is designed to be worked on individually (see attached handout for guidelines). There are no exceptions for late assignments and those handed in late will be subject to an immediate 10% penalty followed by a 10% reduction in grade for each day thereafter (weekend and holidays included). Medical related circumstances will require a note from a physician.

Re: Posting of Grades and Picking-up of Assignments

- Assignments will be handed back only in class or by the Professor or Teaching Assistant at pre-arranged time(s)
- If you would like to receive your assignment through the mail, please include an appropriately sized self-addressed, stamped envelope with your assignment when you hand it in to the Professor or Teaching Assistant.
- Posting of grades will be at the discretion of each Professor and, if posted, they will be scrambled. Please note, grades will not be available in the Geography office.