

**GEOG 537 (H3)  
GIS in Forest Ecology**

**Timetable:** Summer Session, July 21 – July 29, 2005

**Location:** University of Calgary/Kananaskis Field Station

**Instructor:** Greg McDermid  
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**TA:**

**Course Calendar Description:**

This course uses problem-based learning approaches to investigate dynamic forested landscapes using digital data in a GIS environment. Students will gain hands-on experience with critical field and computer-based methods, such as 'ground truth' vegetation sampling adhering to Alberta Vegetation Inventory standards, GPS georeferencing, and strategies for performing environmental management activities.

**Course Content:**

The goal of this course is to challenge students to use a variety of geospatial tools and resources to solve a sequence of practical 'problems' related to landscape-level GIS analysis in a forested environment. The toolset consists of field methods, computer resources, written material, lectures, and tutorials. Success will require teamwork, project management, technical skills, and critical thinking: the foundation of a successful GIS expert.

Course delivery will consist of a blend of lectures, field work, computer labs, readings, and group discussions. The applications and principles of GIS analysis of the forest environment will be presented, with an emphasis on the importance of large-area, landscape scale applications in forest management. The Alberta Vegetation Inventory (AVI) is a key source of environmental information in Alberta's forested environments, but these data must be firmly tied to field observations to ensure maximum effectiveness. We will examine these linkages by reviewing the AVI, alternative information sources (remote sensing imagery) field equipment, and the data collection protocols necessary to assemble a geospatial data base that is capable of assessing the accuracy of the AVI. Students will then use their assembled data layers to solve an assigned forest management issue, and use the knowledge gained in the accuracy assessment to perform a sensitivity analysis. What impact does the accuracy of the input layers have on potential management solutions?

The following schedule is tentative. Tutorial sessions designed to allow each student team the opportunity to outline their questions and discuss potential solutions will be held each evening.

**Course Schedule:**

· **Friday, July 21 (University of Calgary)**

7:00-9:00PM: Lecture/Discussion

- GIS in forest ecology
- Introduction to problem-based learning

- The Alberta Vegetation Inventory
- **Saturday, July 22 (University of Calgary)**
  - 9:00AM-12:00PM: Lecture/Discussion
    - Sampling Design
    - Sample size determination
    - Multi-scale vegetation structure
    - Polygon sampling strategies
    - Introduction to Lab 1 (Sampling)
  - 1:00-5:00PM: Individual Computer Lab Work
- **Sunday, July 23 (Kananaskis Field Station)**
  - 10:00AM-12:00PM: Lecture/Discussion
    - Orientation, registration at Kananaskis Field Station, distribution of materials, formation of groups
    - Hand out group project
    - Suggestions for effective project management
  - 1:00-5:00PM: Field Equipment Demonstration/Group Field Work
    - GPS, compass, map reading, safety procedures
    - Inventory equipment – prism, DBH, increment bore, clinometer, densiometer
  - 7:00-9:00PM
    - Introduction to Lab 2
    - Hike around forest loop, plant identification
- **Monday, July 24 (Kananaskis Field Station)**
  - 9:00AM-10:00PM: Lab 2: Variable- and fixed-area sampling
- **Tuesday, July 25 (Kananaskis Field Station)**
  - 9:00AM-10:00AM: Lecture/Discussion
    - Accuracy Assessment
  - 10:00AM- 12:00PM: Contract signing
  - 10:00AM-10:00PM: Group Work
- **Wednesday July 26**
  - All Day: Group Work
- **Thursday July 27**
  - All Day: Group Work
- **Friday July 28**
  - All Day: Group Work
- **Saturday July 29**

9:00AM-12:30PM: Group Project Work  
12:30PM-3:00PM: Group Presentations  
3:00PM-5:00PM: Final Written Exam

**Required Text:** Husch, B., et al., 2003: *Forest Mensuration*. Wiley, Hoboken, NJ.

**Readings/Manual:** TBA

**Grading (Weighting)**

1. Two Labs	
Lab 1: Sampling	15%
Lab 2: Variable- and Fixed-Area Plots	15%
2. Group Project	
Interim Report I	10%
Interim Report II	10%
Final Report	25%
Oral Presentation	5%
3. Final Examination (short answer, 1.5 hour exam)	20%

*Note: it is not necessary to pass each course component in order to pass the course.*

**Prerequisite:** Consent of the instructor

**Supplementary Fees:** Supplementary fees of \$290.00 covering the cost of room and board at the Kananaskis Field Station are non-refundable.

**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 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. 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.

### Re: Posting of Grades and Picking-up of Assignments

- Assignments will be handed back only in class or by the Professor at pre-arranged time(s).
- To receive your assignment back via mail, please include an appropriately sized self-addressed, stamped envelope with your assignment when handing in to the professor.
- Posting of grades will be at the discretion of each Professor and, if posted, they will be scrambled. Grades will **not** be available at Geography's main office.

### Contact Information for Student and Faculty Representation

- SU VP Academic Phone: 220-3911 and e-mail: [suypaca@ucalgary.ca](mailto:suypaca@ucalgary.ca)
- SU Faculty Rep. Phone: 220-3913 and e-mail: [socialscirep@su.ucalgary.ca](mailto:socialscirep@su.ucalgary.ca)

### Campus Safewalk

Campus Security, in partnership with the Students' Union, provides the Safewalk service, 24 hours a day, to any location on Campus including the LRT, parking lots, bus zones and University residences. Contact Campus Security at 220-5333 or use a help phone, and Safewalkers or a Campus Security officer will accompany you to your Campus destination.