GEO 647 H (3-3) AREA III

ADVANCED RESEARCH AND APPLICATIONS IN GEOGRAPHIC INFORMATION SYSTEMS

Timetable	Lec #01	W F	13:00- 14:15	ES 908	**Catalogue # 2079**
	Lab #01	R	9:00 – 12:00	ES 415	

Instructor: Dr. Dan Jacobson
Office: ES 418
Office hours: W 10:30-11:30 or by appointment
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TA: Rizwan Shahid
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Course Content

This is an advanced course designed to increase the student's understanding of advanced applications and current research in geographic information systems. The two main objectives of the course are (1) to acquire advanced knowledge of the fundamental concepts in GIS, and (2) become familiar with current applications of GIS technology for effective spatial analysis and the communication of geographic information. The first portion of the course will be traditional lecture/laboratory-based teaching that examines advanced core concepts of GIS. The second portion of the course will focus on student-based research about current applications and developments of GIS. Students will conduct independent research on topics of their choice, and convey this information to the class via an oral presentation and a web-based independent research report reports.

This will involve:

- Developing an advanced understanding in fundamental core concepts in GIS
- Exploring these concepts in a technical lab based setting
- Promoting critical thinking and reasoning with data in a GIS application based setting
- Developing methodologies and procedures for independent research projects

Context and wider aims of the course:

The goals are to integrate the wider theoretical background of Geographic Information Science with specific technical situations, and to explore these throughout the duration of the course, as they relate to specific applications or data.

Lab Activities and Student Projects:

Weekly lab activities will run for the first portion of the course. The purpose of the lab exercises is to compliment the material presented in the lectures, and to give students hands-on experience with advanced topics in GIS. Topics may include, but are not limited to, data acquisition & data migration, evaluation of data quality, GIS database design, and communicating geographic information. We will also review journal articles of interest for open class discussion.

Each student will also prepare a term project on an advanced topic in GIS. The term project will be broken down into two components. First, each student will present a short lecture on the background information or theory about their topic. The second component will be to explore the topic in a short research application. The outcome of this application will be presented to the class in the form of a web-based report.

Blackboard: http://blackboard.ucalgary.ca/

Required Texts: Longley, P., Goodchild, M., Maguire, D., & David, R. (Eds.). (2001). *Geographic Information Systems and Science.* New York: John Wiley & Sons. ISBN: 0-471-89275-0

No single text covers all of the material presented in this course. However, the text above provides the most concise and comprehensive overview, and is required for the course.

A laboratory manual will be provided in electronic format, and black and white hard copies may be available for a fee. Students are also encouraged to make use of textbooks they have obtained for previous courses. Some texts that may be helpful for elaborating on the material presented in the course are:

Supplementary texts:

Duckham, M, Goodchlid, M.F., Worboys, M.F. (Eds.) . (2003) *Foundations of geographic Information Science.* New York: Taylor and Francis ISBN: 0-415-30726-0

Burrogh, P.A. and R.A. McDonnell. 1998. *Principles of Geographic Information Systems*. Oxford University Press, London.

Worboys, M.F. 1995. *GIS: A Computing Perspective*. Taylor and Francis, London.

Zeiler, M. 1999. *Modeling Our World: The ESRI Guide to Geodatabase Design*. Environmental Systems Research Institute, Inc. (ESRI) Press, New York.

Readings/Manual: Additional readings and links to electronic resources will be made available during the course period. A laboratory manual will be provided in electronic format

Grading (Weighting)

There is no final examination for this course and therefore will not be scheduled by the Registrar's Office. It is not it is essential to pass all elements/components to pass the course as a whole, however each element of the course is closely inter-related.

Students will be evaluated in three areas: (1) their knowledge of lecture materials, including classroom participation and discussion (2) laboratory work, and (3) the term project. The mid

term exam will be ‘open-book’ and will test the students’ knowledge of the conceptual issues and research applications in GIS. The application of this knowledge will be evaluated through laboratory exercises and individual research projects. The distribution of marks will be:

Mid-term exam (open book):	10%
Laboratory exercises:	40% (4 x 10%)
Journal review	10%
Participation	5%
Term Project: Presentation	10%
Term project: Report:	25%

Grading System:

Grade	Percent	Graduate Description
A+	95.0 - 100	Outstanding
A	90.0 - 94.9	Excellent – superior performance showing comprehensive understanding of the subject matter
A-	85.0 – 89.9	Very good performance
B+	80.0 – 84.9	Good performance
B	75.0 – 79.9	Satisfactory performance
B-	70.0 – 74.9	Minimum pass for students in the Faculty of Graduate Studies
C+,C,C-	60.0 – 69.9	All grades below B- are indicative of failure at the graduate level and cannot be counted toward Faculty of Graduate Studies course requirements.
D+, D	50.0 – 59.9	
F	<50.0	

Prerequisite: Consent of the Department, Instructor, or MGIS program manager. (Geography 547) or equivalent (699.47) is required. Priority to MGIS students.

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: suvpaca@ucalgary.ca
- SU Faculty Rep. Phone: 220-3913 and e-mail: 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.