The Department of GEOGRAPHY

GEOGRAPHY FINAL COURSE OUTLINE: WINTER 2011
GEOGRAPHY 647
H(3-3)

Advanced Research and Applications in Geographic Information Systems

Section	Days	Times	Location
LEC01	Th	11:00-13:45	ES 342
LAB01	Th	14:00-16:45	ES 415

Instructor: Dan Jacobson	Office: ES 306
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Please note: The appropriate emergency evacuation assembly points for all classes taught in Earth Sciences is ICT Food Court.

Official Course Description:
Focus on advanced GIS applications in core areas; methodological developments in GIS and current research directions in GIS.

Prerequisite: Consent of the Department

Supplementary Fees*: (field trips etc). N/A*

Course Summary
This is an advanced course designed to increase the student's understanding of Geographic Information Science (GISc). This will involve critical analysis of theory, concepts, and current research, technical and social developments, along with applications of geographic information systems.

The three main foci of the course are in three in overlapping broad domains, (i) theory, (ii) technical, and (iii) applications

The main objectives of the course are:
(1) To acquire advanced knowledge of the fundamental concepts in GISc.
(2) To become familiar with current applications of GIS technology for effective spatial analysis and the communication of geographic information.

The first part of the course will involve readings, lecture, and laboratory-based teaching that examine advanced core concepts of GISc. The second portion of the course will focus on student-based research about current applications and developments of GIS. This will begin within discussions around key literature, and a literature review. Students will conduct independent research on topics of their choice; develop a project proposal and a course project. The proposal and final project will be presented to the class in an open forum to promote discussion and an exchange of ideas.

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:

Directed 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. The remaining lab time is intended to be "open labs" where students are free to explore topics of interest relating to their final project. There will also be a set of "reference labs" and tutorials to facilitate the compilation of ideas and techniques for the final project. Topics may include, but are not limited to, Review of ArcGIS, GIS Data Models, (Geo)database Design, Spatial Analysis, Interpolation, 3-D, Evaluation of data quality, Communicating geographic information.

Literature Review

Journal articles of interest will be reviewed for open class discussion.

Required Texts: None

No single text covers all of the material presented in this course. However, the text below is suggested as a starting point: it provides the most concise and illustrative overview.

Longley, P., Goodchild, M., Maguire, D., & David, R. (Eds.). (2005). *Geographic Information Systems and Science.(2nd Edn)* New York: John Wiley & Sons. ISBN: 0-470-87001-X

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.

Readings/Manual: Additional readings, laboratory manual and links to electronic resources will be made available during the course period, via Blackboard.

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 primarily evaluated in these areas:
(1) Laboratory work.
(2) Their knowledge of lecture materials, including classroom participation and discussion.
(3) Discussions and review of topical literature.
(4) Presentations to class
(5) The course project.
The course project is expected to demonstrate knowledge of the conceptual issues and research applications in GIS. The research project will be evaluated, as a proposal, the product and report, and presentations to the class.

The distribution of marks will be:

Laboratory exercises:	50%
Journal and Literature review discussions and:	15%
Project:	35%

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	

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

Assignments: All assignments must be submitted by the specified due date and time. Late penalties will apply with a 10% drop in grade for each day of a late submission.

Medical exceptions will be made with a doctor's note. Reasonable accommodations will be made for students in exceptional circumstances.

IMPORTANT: All work must be submitted via Blackboard.

Any email communication with the instructor or TA, must be delivered by the Blackboard email system, and clearly state in the email header the reason for the email. If this is not possible, then the email header should begin with "GEOG647W11".

Submission and File name conventions: All work must be submitted in a format editable by MSWord. Or a zipped file (*.zip) containing attachments that can be opened with 7zip software.

All files must be uniquely identifiable by their file name

Format : Creation Date_ Name_Subject

For example: 091119_Smith_GEOG647_Lab1.doc

09 is 2 digit year code (2009)
11 is 2 digit month code (November)
19 is 2 digit day code (19th)

Writing across the Curriculum
Writing skills are not exclusive to English courses and, in fact, should cross all disciplines. The University supports the belief that throughout their University careers, students should be taught how to write well so that when they graduate their writing abilities will be far above the minimal standards required at entrance. Consistent with this belief, students are expected to do a substantial amount of writing in their University courses and, where appropriate, members of faculty can and should use writing and the grading thereof as a factor in the evaluation of student work. The services provided by the Writing Centre in the Effective Writing Office can be utilized by all undergraduate and graduate students who feel they require further assistance.

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. 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. http://www.ucalgary.ca/honesty/plagiarism

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, please contact their office at 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.

Freedom of Information and Protection of Privacy
FOIP: The Freedom of Information and Protection of Privacy (FOIP) legislation disallows the practice of having students retrieve assignments from a public place, e.g., outside instructor's office, the department office, etc. Term assignments will be returned to students individually, during class or during the instructor's office hours; if students are unable to pick up their assignments from the instructor, they provide the instructor with a stamped, self-addressed envelope to be used for the return of the assignment.

Re: Posting of Grades and Picking-up of Assignments
- All assignments will be handled through Blackboard or personally.
- Their own grades will be available to each student on Blackboard by password access. 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: arts1@ucalgary.ca
- The students ombudsman office information can be found at: http://www.su.ucalgary.ca/page/affordability-accessibility/su-structure/contact-info

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.