The University of Calgary
Faculty of Environmental Design
EVDS 611 - Winter 2013
Time: Tues 13:00-16:50
Location: PF 2170/ PC LAB

Course Title: Geographic Information Systems for Environmental Design
Instructors: Dr. Richard M. Levy

Course Calendar Description

Introduction to the use of GIS in urban planning and environmental management. Discussions on GIS modeling focus on population projection, location theory, land use modeling and environmental and ecological management. Case studies from both the public and private sector provide the basis of assignments. Emphasis given to developing a sensitivity to the application appropriate for specific GIS problems.

Course Goals

Students in the course will have an opportunity to develop an understanding of the theory and practice of GIS and remote sensing. In addition to class lectures and discussions, guest lectures and lab sessions will introduce students to both raster and vector based GIS applications used by professionals in environmental management and urban planning. Several assignments will be given during the term. A goal of these assignments will be to develop a sensitivity to the application appropriate for solving specific GIS problems. Many of the lectures will be illustrated by actual problems encountered in practice. Topics that will be discussed during the term include:

- GIS and mapping
- Decision support and GIS
- Sources for GIS and remote sensing data
- Data structures and data management
- Interpretation of multi-spectral, radar and other remote sensing data
- Land use classification
- Topographical analysis
- Design and implementation of GIS
- Modeling with GIS
- Biodiversity Monitoring and Habitat Modeling
- Spatial Analysis with GIS
- Data visualization

Labs are an integral component of the course. During the semester you will have an opportunity to work with the two most popular desktop GIS applications in the market place: ArcGIS and MapInfo. In addition to acquiring experience with GIS software, you will learn how to utilize ACCESS as a database management tool. This will be a particularly important skill for those who plan to acquire field data as part of your graduate research. During the course you will also be introduced to EXCEL as a tool for data organization and statistical analysis.

Students should have a basic understanding of EXCEL for this course. If you have any questions about this course please contact the instructor at rmlevy@ucalgary.ca

Readings:

Links to articles will be available from Blackboard.

General References:
Antennucci,J.C., Geographic Information Systems, A Guide to the Technology, New York, New York: Van Nostrand Reinhold, 1991.
Berry, J. Beyond Mapping: Concepts: Algorithms and Issues in GIS, N.Y.: John Wiley & Sons.
Huxhold, William E., An Introduction to Urban Geographic Information Systems, New York, New York: Oxford University Press, 1991.
Lillesand, Thomas and Ralph W. Kiefer, Remote Sensing and Image Interpretation, New York, New York: John Wile & Sons, Inc., 1994.

WebSources:
www.GIS.Com (ESRI supported website)
www.esri.com (ESRI home page)
http://www.gislounge.com/ (GIS portal)
http://www.csiss.org/ (GIS portal sponsored by a grant from NSF)
http://www.urisa.org/ (The Assoiciation for GIS Professionals http://www.freegis.org/
(Portal to free GIS software, documents and other
http://www.innovativegis.com/basis/ (Corporate website for Berry &Associates)

Software: MapInfo, ArcGIS, Google Earth, ACCESS, EXCEL

Assignments
Students will be asked to submit a research proposal as their first assignment. Those working on an MDP or thesis are encouraged to pursue their research as part of the course requirements.

1) Assignment 1: Land Use Classification and Analysis of Land Use Patterns – 22%
2) Assignment 2: Urban Modeling – 22%
3) Assignment 3: Regional Planning – 22%
4) Final Exam - 34%

Late Assignments
All late assignments will be subject to a grade reduction. For each two days late, your grade will be reduced by . 33/ 4.00.

University Grading Policy
It is a University requirement to address the following aspects of course evaluation in a course outline: whether or not a passing grade on any particular component of a course is essential if the student is to pass the course as a whole; whether or not there will be a final examination and if an examination is held, whether the use of aids such as open book, etc. are permitted; the weights to be assigned to the various components which are to be considered in determining the final grade (term papers, laboratory work, class participation, tests, final examinations, etc.). This weighting may not be changed during the session or at the time of grade reporting; when writing and the grading thereof is a factor in the evaluation of the student's work. (Note: EVDS courses do not have "Registrar Scheduled" final exams.)

Grading Scale

Letter Grade	4-Point Scale	4-Point Range	Percent	Description
A+	4.00	4.00	92.5-100	Outstanding - evaluated by instructor
A	4.00	3.85-4.00	85-92.49	Excellent - superior performance showing comprehensive understanding of the subject matter
A-	3.70	3.50-3.84	80-84.99	Very good performance
B+	3.30	3.15-3.49	76-79.99	Good performance
B	3.00	2.85-3.14	73-75.99	Satisfactory performance
B-	2.70	2.50-2.84	70-72.99	Minimum pass for students in the Faculty of Graduate Studies
C+	2.30	2.15-2.49	66-69.99	All final grades below B- are indicative of failure at the graduate level and cannot be counted toward Faculty of Graduate Studies course requirements.
C	2.00	1.85-2.14	63-65.99	
C-	1.70	1.50-1.84	60-62.99	
D+	1.30	1.15-1.49	56-59.99	
D	1.00	0.50-1.14	50-55.99	
F	0.00	0-0.49	0-49.99	

Note: A student who receives a B- or lower in two or more courses will be required to withdraw regardless of their grade point average unless the program recommends otherwise. Individual programs may require a higher minimum passing grade. A grade point value of 3.0 on the 4-Point Scale is the minimum acceptable average that a graduate student must maintain throughout the program as computed at the end of each registration anniversary year of the program. A student who receives a grade of F will normally be required to withdraw unless the program recommends otherwise. Late assignments will have their grade reduced by .4 for every two days late.