# DESCRIPTION

This course provides an introduction to digital mapping and spatial analysis using geographic information systems (GIS). Students learn how to create their own maps, and how to use GIS software to analyze geographic problems and learn techniques that can be applied to a wide variety of subject areas within geography as well as in other disciplines. The lectures discuss the underlying theory, and how it is implemented in GIS software. The lab sessions give students the opportunity to learn for themselves how to put that theory into practice, gaining hands-on experience with ESRI ArcInfo 9 software, the most popular GIS and an industry standard in many fields. A basic understanding of computers and familiarity with the Microsoft Windows operating system is assumed.

# INSTRUCTOR

#### Mike Lackner

Office: 5061, Sidney Smith Hall Phone: (905) 569-4471 e-mail: mike.lackner@utoronto.ca (best way to reach me) Office hours: Tuesday/Thursday, 11:00am-12:00 pm Course Website: <u>http://individual.utoronto.ca/lackner/ggr272/GGR272F\_main.html</u>

# LECTURES

Tuesday and Thursday, 10:00am-11:00am, Room 2118, Sidney Smith Hall

# LABS

All labs are in Room 620, Sidney Smith Hall Note: There are NO lab sessions in the first week.

- P0101 Tue, 11:00am-1:00pm
- P0301 Wed, 10:00am-12:00pm
- P0401 Wed, 1:00pm-3:00pm
- P0501 Thu, 1:00pm-3:00pm
- P0601 Thu, 4:00pm-6:00pm
- P5102 Tue, 6:00pm-8:00pm

# TEXT

Lo, C.P. and Albert K.W. Yeung, 2007. <u>Concepts and Techniques of Geographic Information Systems</u>, 2<sup>nd</sup> ed., Pearson Education Canada, Inc., Toronto.

# PREREQUISITES

There are no prerequisites for this course.

#### **EVALUATION**

Lab assignments:	35%
Midterm exam:	25%
Final exam:	40%

Late penalty: 5% of the total mark for the lab per day, up to 7 days (excluding weekends and holidays), after which assignments will not be accepted. If an assignment is handed in after the start of the lab session in which it is due, it will be penalized for that day. Requests for deadline extensions must be made within 5 business days of the deadline, and must be accompanied by an official university medical form. If an assignment has been marked and handed back to the class, no other assignments will be accepted (even if it has not been 7 days). Hand in all assignments directly to your TA. If absolutely necessary, assignments can be handed in to the Geography Office (Room 5047, Sidney Smith) during working hours. Make sure the date and time is noted by office staff as your mark can be lowered if the work gets to the TA after the deadline. You assume all risk for lost or missing material.

Academic offences: Plagiarism and other academic offences will not be tolerated. For more information, please refer to the arts and science code of behaviour on academic matters.

# COURSE SCHEDULE

Nov 15 Raster Analysis   11 Nov 20 Cartographic Modeling, Model Builder   11 Image: Mov 20 Attribute Data for Thematic Mapping   Nov 22 Attribute Data for Thematic Mapping Lab 5   12 Nov 27 Remote Sensing as a Data Source   12 Nov 29 Remote Sensing as a Data Source	THEME	WEEK	DATE	TOPIC	ASSIGNED	DUE
Minimized of Sept 13     Digital Representation of Geographic Data     sessions       2     Sept 13     Digital Representation of Geographic Data     sessions       Map Design     2     Sept 20     Quantitative Map Types     Lab 1       Map Design     3     Sept 27     Coordinate Systems and Map Projections     Lab 2     Lab 1       Data Input     6     Oct 2     Map Projections     Lab 2     Lab 1       0ct 4     Vector Data Input: Creating and Editing Data     Lab 2     Lab 1       5     Oct 10     Vector Data Models and Topology     Lab 3     Lab 2       6     Oct 18     Database Management Systems     Lab 3     Lab 2       7     Oct 25     Working with Tables (Adding and editing attribute data, adding fields, statistics, joins)     Lab 4     Lab 3     Lab 3       8     Oct 30     Minterm Test Results     Nov 1     Nov-Topological Vector Overlay Analysis     Lab 4     Lab 3       9     Nov 6     Preparing Data for Analysis     Lab 4     Lab 3     Lab 3       0     Nov 15     Raster Analysis     Nov 20     Cartographic Modeli			Sept 11	Course Overview and Introduction to ArcGIS		
2   Image: Control of the second se		1	Sept 13	Digital Representation of Geographic Data		
Map Design     Sept 20     Quantitative Map Types       3     Sept 25     Quantitative Map Types       3     Sept 27     Coordinate Systems and Map Projections       4     Oct 2     Map Projections       Data input     5     Oct 4     Vector Data Input: Creating and Editing Data       5     Oct 9     Vector Data Input: Creating and Editing Data     Lab 2       0ct 11     Vector Data Models and Topology     Ct 13     Database Management Systems       0ct 18     Database Management Systems     Lab 3     Lab 2       7     Oct 23     MIDTERM TEST     Cot 30     Midterm Test Results       Nov 1     Non-Topological Vector Analysis (Queries)     Lab 4     Lab 3       0verlay Analysis     10     Nov 6     Preparing Data for Analysis (Queries)       0verlay Analysis     10     Nov 13     Raster Analysis     Lab 5     Lab 4     Lab 3       0verlay Analysis     10     Nov 20     Cartographic Modeling, Model Builder     Lab 5     Lab 4     Lab 3       0verlay Analysis     10     Nov 22     Attribute Data for Thematic Mapping     La			Sept 18	Map Design in a GIS		
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Map Design   3   Sept 27   Coordinate Systems and Map Projections     4	Map Design					
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TBA FINAL EXAM			Dec 6	Data Quality and Metadata & Course Review		
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\* Labs are due at the start of your lab session during the week indicated.

Note: The instructor reserves the right to modify the schedule during the term.