

GEOG 231 H (3-3) AREA III

INTRODUCTION TO GEOSPATIAL METHODS

Timetable **See current information at:** <http://www.ucalgary.ca/InfoNet/>
Infonet at: <http://www.ucalgary.ca/InfoNet/>
Catalogue # **See Infonet information at:** <http://www.ucalgary.ca/InfoNet/>

INSTRUCTOR:**Dr. Darren Sjogren**

ES 926

Office hours: By appointment only

Phone: 220-2575

Contact through Blackboard

TEACHING ASSISTANT:**Kasia Rozalska**

TBA

Office hours: MT 13:00-14:00

Phone: TBA

Contact through Blackboard

COURSE ASSISTANT:**Robin Poitras**

ES424

Office hours: TBA

Phone: 220-6023

Contact through Blackboard

Calendar Description:

An introduction to cartography, remote sensing, geographic information systems, and descriptive spatial statistics.

Lecture Topics:

- Geographic phenomena and data
- Cartographic communication
- Geodesy, coordinate systems and projections
- Descriptive statistics and descriptive spatial statistics
- Electromagnetic radiation theory
- Vector data models and analysis techniques
- Raster data models and analysis techniques
- Data input and management
- Applications of geospatial methods

Prerequisite: GEOG 205 or admission to the Major or Minor in Geography, Earth Science, Environmental Science, Urban Studies, Latin American Studies or the Minor in Transportation Studies.

Blackboard:

All course material is handled through Blackboard: <http://blackboard.ucalgary.ca/>. Students are automatically registered. If you can't access the system contact Debbie Little (little@ucalgary.ca) in the Geography Office.

Communicating with your instructor, TA and CA:

- All emails addressed to the instructor, TA or CA must be sent through Blackboard. We all receive dozens of emails each day. When you send email through Blackboard it adds an identifier on the subject line that will allow us to identify your email more quickly which will allow us to respond more quickly. If you do not use Blackboard there are no guarantees that we will be able to identify your email in the barrage of emails that we all receive.

- Please be as clear as possible about your problem or question when you email us. This minimizes the email tag that can occur when the question is not obvious.
- If you are requesting an appointment to see any of us, please suggest three times when you are available. Hopefully, one of those times will fit into our schedule and again we can minimize the email tag that can and usually does occur.

Required Texts

Chang, K.T. 2006. Introduction to Geographic Information Systems, 3rd edition. McGraw Hill.

McGrew, J.C. and Monroe, C.B. 2000. An introduction to statistical problem solving in Geography, 2nd edition. McGraw Hill.

Readings: Readings will be assigned from the required texts and additional sources. All readings from additional sources will be posted on Blackboard.

Evaluation methods

Midterm

- 50 minutes in duration – during lecture period
- 30 multiple choice questions
- Choice 1 of 2 short essay questions
- Will include questions from the readings, laboratory material as well as lecture material

Final Exam

- Registrar scheduled
- 2 hours in duration
- 50 multiple choice questions
- Choice 3 of 4 short essay questions
- Approximately 25% of exam will integrate material from Part I of the course
- All material presented in the course is testable material

Laboratory Exercises

- All exercises and data will be available on Blackboard
- All exercises will be introduced during the lab period. Generally, the labs can be completed during the lab period, though you will invariably need additional time for some outside of scheduled lab periods.
- Labs 2-7 and associated will be submitted through Blackboard.
- Labs are due no later than 23:50 on the day before the next lab exercise is introduced (except lab 7 – see detailed lecture and lab schedule). For example: if your lab period is on Monday your lab must be submitted by 23:50 on Sunday. This deadline is based on the lab section you are officially registered in. Please see the lecture and lab schedule below for the days that new lab exercises will be introduced.

Term Project

- Will be assigned after the midterm exam.
- Project requires a research proposal/plan to be developed and communicated in a formal manner.
- This project will be submitted through Blackboard no later than Dec 9 at 23:50.

Policy on late assignments and extensions:

Assignments submitted after the deadline will not be graded and you will receive 0 for that component. Exceptions will be granted for medical reasons and may be granted for personal reasons. Extensions requested for medical reasons must be accompanied by a doctor's note. Extensions requested for personal reasons, must be submitted by email to both your TA (Kasia Rozalska) and instructor (Darren Sjogren) at least 2 days before the deadline.

Grading (Weighting):

Lab Assignments (7)	40%
Midterm	20%
Term Project	10%
Final Exam	30%

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

Grading System

A+ > 93	C+ 69 – 72.99
A 89 – 92.99	C 65 – 68.99
A- 85 – 88.99	C- 61 – 64.99
B+ 81 – 84.99	D+ 57 – 60.99
B 77 – 80.99	D 50 – 56.99
B- 73 – 76.99	F < 50

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.

Posting Grades and Picking up Assignments

- Assignments are all submitted online and returned online using Blackboard.
- Tests will be handed back in class on days announced on Blackboard.
- All of their own grades will be available to students on their Blackboard gradebook, which is accessible only by password. Summary class statistics are available on the same site.
- Grades will **not** be available at Geography's main office nor from the instructor or TA.

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.

GEOGRAPHY COURSE OUTLINE* 2005 (FALL)

Updated: 8/19/05

Week/Date	Lecture topics	Lab topics	Readings	Notes and Deadlines
Part I: The fundamentals				
Sept 12 – 16	Mon: Course introduction Wed: Geographic phenomena/data Fri: Geographic phenomena/data	<ul style="list-style-type: none"> No formal lab 	M&M – Chapters 1, 2 C – Chapter 1	
Sept 19 - 23	Mon: Geographic phenomena/data Wed: Geographic phenomena/data Fri: Cartographic communication	Lab 0: Introduction to facilities and cartographic design	C – Chapter 10 M – Chapter 3 S – Chapter 10	R. Poitras - lecture on basic elements of cartographic design in lab
Sept 26 - 30	Mon: Cartographic communication Wed: Cartographic communication Fri: Representing the Earth	Lab 1: Map abstraction and deduction	C – Chapter 2 M – Chapter 3 S – Chapter 10	
Oct 3 - 7	Mon: Representing the Earth Wed: Representing the Earth Fri: Introduction to statistics	Lab 2: Measurement levels and introduction to Cartography	C – Chapter 2	Lab 1 due at 23:50 on the day <u>before Lab 2 introduction</u>
Oct 10 - 14	Mon: Thanksgiving – no lecture Wed: Introduction to statistics Fri: Introduction to statistics	<ul style="list-style-type: none"> No formal lab Lab rooms open except Monday (TA not extant) 	M&M – Chapters 3, 4	
Oct 17 - 21	Mon: EMR principles Wed: EMR principles Fri: Review for midterm	Lab 3: Projections	J – Chapter 2	- Be prepared to ask questions for review - Lab 2 due at 23:50 on the day before Lab 3 introduction
Oct 24 – 27	Mon: <u>Midterm exam</u> Wed: Midterm postmortem and Term project assignment	<ul style="list-style-type: none"> No formal lab 		
Part II: Geospatial analysis				
Oct 28	Fri: Introduction to geospatial analysis		C – Chapters 3, 4, 11, 12	
Oct 31 – Nov 4	Mon: Vector Data – types/models Wed: Vector data analysis Fri: Vector data analysis	Lab 4: Vector Data Analysis	C – Chapters 3, 4, 11, 12	Lab 3 due at 23:50 on the day <u>before Lab 4 introduction</u>
Nov 7 - 11	Mon: Vector data analysis Wed: Raster data - types Fri: <u>Remembrance day – no lecture</u>	<ul style="list-style-type: none"> No formal lab (reading days) Lab rooms open except Thursday (TA not extant) 	C – Chapters 5, 13, 14,15	
Nov 14 - 18	Mon: Raster data sources Wed: Raster data analysis Fri: Raster data analysis	Lab 5: Raster Data Analysis	C – Chapters 5, 13, 14,15	Lab 4 Due: 23:50 on the day <u>before Lab 5 introduction</u>
Nov 21 - 25	Mon: Raster data analysis Wed: Raster data analysis Fri: Data Input and management	Lab 6: Image Classification	C – Chapters 8, 9	Lab 5 due at 23:50 on the day <u>before Lab 6 introduction</u>

*subject to change before classes officially start.

Nov 28 – Dec 2	Mon: Models in GIS Wed: Uncertainty Fri: Guest lecture - Madgic	Lab 7: Urban land-use and change	C – Chapters 8, 9	Lab 6 due at 23:50 on the day before <u>Lab 7 introduction</u>
Dec 5 - 9	Mon: Guest lecture – S. Cruikshank Wed: Guest lecture – L. McCann Fri: Review for final exam	<ul style="list-style-type: none"> • No formal lab • Lab rooms open (TA will be extant) 		- Be prepared to ask questions for review - Term project due Dec 9 at 23:50 Lab 7 due at 23:50 <u>on the day of your last lab period</u>

Required Textbook Readings:

C = Chang, K.T. 2006. Introduction to Geographic Information Systems, 3rd edition. McGraw Hill.

M&M = McGrew, J.C. and Monroe, C.B. 2000. An introduction to statistical problem solving in Geography, 2nd edition. McGraw Hill.

Additional Required Readings:

M = Monmonier, M. 1996. How to lie with maps, 2nd edition. The University of Chicago Press. (Chapter 3 on Bb site as a PDF)

S = Slocum, T.A., McMaster, R.B., Kessler, F.C., and Howard, H.H. 2005. Thematic Cartography and Geographic Visualization, 2nd edition. Prentice Hall. (Chapter 10 on Bb as a PDF)

J = Jensen, J.R. 2000. Remote sensing of the environment, 1st edition. Prentice Hall. (Chapter 2 on Bb as a PDF)

LKC = Lillesand, T.M., Kiefer, R.W., and Chipman, J.W. 2004. Remote sensing and image interpretation, 5th edition. Wiley. (Part of Chapter 7 on Bb as a pdf)