Introduction to Geographic Information Systems, GEOM 2007-B

Carleton University
Department of Geography & Environmental Studies
Fall 2019

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Office Hours: Tuesday (1:00pm-2:00pm) or by appointment

INTRODUCTION

This course introduces geographic information systems (GIS) as a set of tools for the management, analysis, and presentation of spatial information. You will learn both conceptual and practical aspects of working with a GIS, and how to compile and work with spatial databases. You are expected to gain an understanding of both the strengths and weaknesses of the systems presented in solving geographic research problems. The course requires no prior knowledge of GIS itself, but some background in associated concepts in geomatics is assumed; if you have not taken GEOM 1004, GEOM 2004, or ERTH 2406 preceding this class, there will be some background readings. Precludes additional credit for GEOM 2004 (no longer offered).

COURSE FORMAT

Lectures will follow the attached course outline. The schedule may require minor revisions to accommodate unexpected scheduling issues. The lectures will introduce and illustrate the major concepts in GIS. Support material will be available on the cuLearn course site.

SCHEDULE

Lectures: Tuesday 2:35pm- 4:25pm, classroom: TBA
Lab sessions: - section B01: Wednesday 8:35am-10:25am in Loeb Building A200
- section B02: Thursday 8:35am-10:25am in Loeb Building A200
- section B03: Wednesday 2:35pm-4:25pm in Loeb Building A200

Note: Labs will run in the following order: B01→B03→B02

COURSE TEACHING ASSITANTS

TBA

READINGS

Readings will be made available on cuLearn.

STUDENT RESOURCES AND COMMUNICATION

Office Hours, Email and Appointments

If you have questions pertaining to lecture materials, I encourage you to come to my office hours or to meet me at the end of class to make an appointment.

All questions about missed assignments, missed exams, and other practical concerns about the course should be directed to me by email. Emails will be responded to during business hours only. Please place the course number GEOM 2007 in the subject line. Private correspondence with the Instructor and Teaching Assistants should be through a Carleton email account (this is accessible in cuLearn).

cuLearn Course Site
The cuLearn course site of GEOM 2007 contains information on all aspects of the course. It includes partial outlines of lectures (not complete notes) and graphs or diagrams presented in class. You need to supplement these notes by attending the class lectures or by referring to the class readings. You will be able to access cuLearn course site and to download files on the first week of classes. If you are not able to login, please contact the course instructor.

EVALUATION

Final marks in the course are based on your performance in five categories as follows:

Participation	5%
Lab assignments	30%
Term Project	40%
Theoretical Term Exam	25%

Technical problems occasionally cause delays. Every effort will be made to prevent this from the systems perspective. It is your responsibility to reduce your exposure to potential problems by reading and listening to all instructions thoroughly and carefully and taking care to avoid risky practices. Practice careful file management (saving files in the proper directories, deleting all unwanted files, naming files thoughtfully, and keeping track of where everything is) at all times.

Standing in a course is determined by the course instructor subject to the approval of the Faculty Dean. This means that grades submitted by the instructor may be subject to revision. No grades are final until they have been approved by the Dean.

Participation
Students are expected to attend classes and to discuss the materials for each topic. Your attendance, asking questions, participation in class discussions, and timely submission of assignments will count towards your participation mark.

Lab assignments
There will be three assignments in total, each worth 10%. The lab assignments are meant to complement the course materials and to facilitate application and integration of knowledge gained from lectures and readings. The lab assignments will be posted on cuLearn at least one day ahead of their corresponding lab session. Please feel free to collaborate with others during the lab sessions to obtain common data, but please submit your own individually-written lab reports that contain your own analyses and answers to questions. Lab assignments must be typed. The assignment reports must be received by the start of the lab period of the day on which they are due. If you arrive late to a laboratory period on an assignment due date, it will be considered late and will be penalized by -10% of the maximum assignment grade. This course depends on a progression of practical exercises, with skills building upon each other across assignments. Late labs will not be accepted, except in extreme cases with legitimate, documented reasons. If you are not finished by the due date, it is best to turn in what you have at that time to get partial credit – it is very important that you do not get behind.

Term Exam
Late in the term (week 10). There will be multiple choice and fill-in-the blank questions. Only students who have made prior arrangements with the instructor, or students who have contacted the instructor within 5 days of the missed term exam with a valid doctor's note explaining why they missed the exam will be permitted to write the make-up exam.

Term Project

In the second half of term, you will work on individual projects, producing interactive electronic map-based presentations. Examples of past projects will be discussed in class. These will draw on skills learned in the course, on a theme of your choice. You will submit all files needed for a working map, and a written report. There is a very tight deadline for us to get your grades in after the last day of term, therefore late projects are a major problem. If you are running into problems towards the end of term, please try to recognize this as early as possible and discuss your situation with Kevin. If you are having a major technical problem, I probably have experience that can help you, and we may be able to arrange short extensions. In absence of such an agreement, late projects will be penalized 15%/day.

COURSE POLICIES

Missed Assignments or Term Exam
Students who fail to submit an assignment or write the term exam will receive an automatic grade of zero. The only exceptions will be for instances of significant illness or a family emergency with a valid documentation.

Standards of Written Work
Any assignment submitted should be printed using *word processing software* and checked for spelling and grammar. The overall presentation quality of the assignments will be reflected in your grade.

ACADEMIC INTEGRITY

Academic integrity is a necessary foundation for all meaningful scholarly activity and verified instances of intellectual dishonesty will be dealt with in full accordance with the procedures laid out in Academic Integrity Policy. Additional information regarding what constitutes plagiarism may be found on Carleton University web site: https://carleton.ca/secretariat/wp-content/uploads/Academic-Integrity-Policy.pdf

The University Senate defines plagiarism as "presenting, whether intentionally or not, the ideas, expression of ideas or work of others as one's own." This can include:

•reproducing or paraphrasing portions of someone else's published or unpublished material, regardless of the source, and presenting these as one's own without proper citation or reference to the original source;

•submitting a take-home examination, essay, laboratory report or other assignment written, in whole or in part, by someone else;

•using ideas or direct, verbatim quotations, or paraphrased material, concepts, or ideas without appropriate acknowledgment in any academic assignment;

•using another's data or research findings;

•failing to acknowledge sources through the use of proper citations when using another's works and/or failing to use quotation marks;

•handing in "substantially the same piece of work for academic credit more than once without prior written permission of the course instructor in which the submission occurs."

Plagiarism is a serious offence which cannot be resolved directly with the course's instructor. The Associate Dean of the Faculty conducts a rigorous investigation, including an interview with the student, when an instructor suspects a piece of work has been plagiarized. Penalties are not trivial. They can include a final grade of "F" for the course.

ACADEMIC ACCOMMODATION

You may need special arrangements to meet your academic obligations during the term. For an accommodation request the processes are as follows:

Pregnancy obligation: write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services website: http://www.carleton.ca/equity/

Religious obligation: write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services website: http://www.carleton.ca/equity/

Academic Accommodations for Students with Disabilities: The **Paul Menton Centre** for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your ***Letter of Accommodation*** at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (*if applicable*). After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website for the deadline to request accommodations for the formally-scheduled exam (*if applicable*) at http://www.carleton.ca/pmc/new-and-current-students/dates-and-deadlines/
You can visit the Equity Services website to view the policies and to obtain more detailed information on academic accommodation at http://www.carleton.ca/equity/

Students representing Carleton University, Ontario or Canada (at academic or sports events):
I fully support students involved with organizations and teams that travel during the semester; however, with this privilege comes additional responsibility. You are responsible for providing formal documentation identifying the organization you represent and potential schedule conflicts with this course. In the event that you are travelling and unable to attend an exam, you must schedule a secondary exam before you depart. Without proper documentation, a missed exam will earn zero points.

HINTS FOR SUCCESS

It is in your best interest to attend class regularly and to participate in class. Try to keep up with your readings and address questions you have on the subject matter at the appropriate time rather than waiting until just before the exam for clarification. This course moves quickly through a large amount of material in a short time. Try to keep up with your readings and address questions you have on the subject matter at the appropriate time rather than waiting until just before the exam for clarification.

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Fall term 2019 Course Outline

Week	Lecture Class	Lab
Sept. 4-5	NO CLASS	NO LAB
Sept. 10-12	Introduction to Course and GIS Spatial data: coordinates and projections	Lab Orientation Assignment 1
Sept. 17-19	Spatial data: data models Attribute data: databases	Assignment 1 continues
Sept. 24-26	Topology in a vector data model	Assignment 2 *Assignment 1 is due*
Oct. 1-3	Manipulating vector data, Model builder	Assignment 2 continues
Oct. 8-10	Vector data input: creating layers and digitizing	Assignment 3 *Assignment 2 is due*
Oct. 15-17	Introduction to GIS project design Getting spatial data at Carleton (and beyond)	Assignment 3 continues ***Project proposal is due***
Oct. 22-24	*NO CLASS – FALL BREAK*	*NO LAB – FALL BREAK*
Oct. 29-31	Spatial analysis/ Network Analyst	Work on projects *Assignment 3 is due*
Nov. 5-7	Customizing ArcGIS	Work on projects
Nov. 12-14	Term Exam: Q&A mini-session	Work on projects
Nov. 19-21	***NOV.19: Theoretical Term Exam in lecture***	Work on projects
Nov. 26-28	**Term project: support session.** Please bring your laptop with ArcGIS installed on it. Have your project file open and your questions ready.	***NO LAB***
Dec. 3-5	Review project requirements ("how to make sure your project will work on the instructor's computer") **Handing back *Theoretical Term Exams and discussing the answer key.***	Work on Projects ***Final Project is due by end of the day on Dec. 7***