

## **Maps, Satellites and the Geospatial Revolution, GEOM 1004**

Carleton University  
Department of Geography & Environmental Studies  
Winter 2018

Kevin Hamdan, Ph.D.  
Office: Loeb A301B  
[Kevin.Hamdan@carleton.ca](mailto:Kevin.Hamdan@carleton.ca)

Office Hours: Monday (11:30am-12:30am) or by appointment

### **INTRODUCTION**

Introduction to the creation and use of maps using a variety of geospatial tools to better understand and resolve physical, social and environmental problems. Overview of geomatics (cartography and map design, geographic information systems, GPS, remote sensing). The main learning objectives are to: (1) to become familiar with the core sub-disciplines in the broad field of geomatics, (2) to develop an appreciation for how geospatial tools are used, and how they are shaping the way we make decisions, and (3) to develop practical, hands-on skills in cartography, GPS mapping, GIS analysis, and remote sensing and to learn how they can be used to help solve social and environmental problems.

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 geomatics. Support material will be available on the cuLearn course site.

### **SCHEDULE**

**Lectures:** Monday 9:35am- 11:25am in Tory Building 240

**Lab sessions:** - section B01: Tuesday 8:35am-10:25am in Loeb Building A200  
- section B02: Thursday 2:35am-4:25pm in Loeb Building A200  
- section B03: Wednesday 1:35pm-3:25pm in Loeb Building A200

### **RECOMMENDED TEXTBOOK**

Jonathan Campbell and Michael Shin, 2011. Essentials of Geographic Information Systems. Saylor Foundation Brady, N.C. Open access textbook available on:  
<https://www.saylor.org/site/textbooks/Essentials%20of%20Geographic%20Information%20Systems.pdf>

### **STUDENT RESOURCES AND COMMUNICATION**

#### **Office Hours, Email and Appointments**

If you have questions pertaining to lecture material 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 1004 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 1004 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 textbook. If you have questions of a general nature, please post it to the “Ask the Instructor” discussion board in cuLearn so that others can benefit from the answers. 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%
Midterm Exam	20%
Lab assignments/Exercises	35%
Lab Exam	15%
Final Exam	25%

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 exercises**

There will be seven assignments in total. The lab exercises are meant to complement the course material and to facilitate application and integration of knowledge gained from lectures and readings. The lab exercises 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. Weekends count as 2 days.

#### **Exams Exam**

Exams will cover lecture materials. Only students who have made prior arrangements with the instructor, or students who have contacted the instructor within 5 days of the missed midterm exam with a valid doctor's note explaining why they missed the exam will be permitted to write the make-up exam.

#### **Lab Exam**

This will happen the week of November 20th during your laboratory session. It will involve a 90 minute computer-based test in which you will answer multiple-choice and short answer questions and you will be required to use mapping software to come up with some of your answers. The final exam is not cumulative, it will only cover materials discussed after the midterm. The final exam is not cumulative, it will only cover materials discussed after the midterm.

## **COURSE POLICIES**

### **Late Assignments**

Late assignments will be penalized by subtracting 10% per day (including Saturday and Sunday) of the total value of the assignment. Students whose assignments are late because of a valid medical reason or family emergency will not be penalized, however, documentation from a family physician or counseling services will be required. If you are not able to hand your assignment directly to the Instructor or TA, you may email a copy of your work to demonstrate you have completed it on time (before the due date) and provide a hard copy (for marking) as soon as possible after that. Every student will be able to hand in any one assignment up to 12 hours late without penalty. Note that material handed-in via the departmental drop box will not be accepted, unless you make prior arrangements with the instructor or TA.

### **Missed Assignments or Exams**

Students who fail to submit an assignment or write the midterm exam will receive an automatic grade of zero. The only exceptions will be for instances of significant illness or a family emergency. Students who are not able to write the final exam during the exam period must consult with *Exam Services* as soon as they are aware that they will miss the test.

### **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](mailto: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 midterm and final 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 midterm and final for clarification.

**Maps, Satellites and the Geospatial Revolution (GEOM1004)**  
**Winter term 2018 Course Outline**

<b>Week</b>	<b>Lecture Class</b>	<b>Lab</b>	<b>Readings</b>
Jan 8-11	Course Introduction Introduction: Maps, satellites and the geospatial revolution	<i>NO LAB</i>	Ch. 1
Jan 15-18	Thinking spatially – key concepts	Lab Introduction: Using Google Earth and GPS	Ch. 1
Jan 22-25	Earth models, georeferencing and the global positioning system (GPS)	Lab exercise 1: Mapping locations with GPS	Ch. 2
Jan 29- Feb 1	Coordinate Systems and Projections	Lab exercise 2: Mapping Nunavut communities <i>Lab exercise 1 is due</i>	Ch. 2
Feb 5-8	An introduction to geographic information systems (GIS)	Lab exercise 3: Examining spatial data and spatial relationships <i>Lab exercise 2 is due</i>	Ch. 5
Feb 12-15	Feb 12: Midterm Exam	Lab exercise 4: Mapping spatial pattern <i>Lab exercise 3 is due</i>	
Feb 19-23	<i>NO CLASS – WINTER BREAK</i>	<i>NO LAB – WINTER BREAK</i>	
Feb 26- March 1	An introduction to cartographic design principles	Lab exercise 4: Mapping spatial pattern (cont'd) <i>Lab exercise 4 is due at the end of the lab period</i>	Ch. 2
March 5-8	Spatial analysis using GIS	Lab exercise 5: Vector Geoprocessing	Ch. 7
March 12- 15	Spatial analysis using GIS (con't)	Lab exercise 6: Introduction to Raster GIS <i>Lab exercise 5 is due</i>	Ch. 8
March 19- 22	An introduction to aerial photography and remote sensing	Lab exercise 7: Introduction to remote sensing image analysis <i>Lab exercise 6 is due</i>	Ch. 4
March 26- 29	An introduction to aerial photography and remote sensing (con't)	Q&A session related to the lab exam <i>Lab 7 is due</i>	Ch. 4
April 2-5	Review and Q&A session related to the final exam	Lab Exam	

April 9-11	<i>NO CLASS</i>	<i>NO LAB</i>	
<b>April</b>	<b><i>FINAL EXAM</i></b>		

DRAFT