

Winter 2022 - Geospatial Analysis - GEOM3005
Department of Geography and Environmental Studies
Carleton University

Academic Year: Winter 2022

Course Title: Geospatial Analysis

Department: Department of Geography and Environmental Studies

Course number: GEOM 3005

Instructor: Dipto Sarkar (dipto.sarkar@carleton.ca)

I. Course description: An advanced course in geospatial analysis theory and practice; geoprocessing; geo-visualization; geostatistics; spatial modelling; working with spatio-temporal data structures; advanced site-suitability, network analysis, and spatial databases.

II. Prerequisites: None

III. Learning Outcomes: By the end of this course, students will be able to:

- Critically evaluate spatial analysis tools
- Perform spatial analysis operations in GISystem with special attention to parameters
- Design and execute spatial analysis projects
- Find, manipulate, and use appropriate open data

IV. Texts: All documentation and course materials will be provided as needed through cuLearn. There are no definitive texts which will suit all purposes. Readings are taken from a variety of sources, any GIS-related texts are useful.

V. Course calendar (tentative: dates and topics subject to change):

Week	Lectures (Tuesdays) (Async and Sync)	Lab (Thursdays) (Sync)
1. Jan 10 - 16	Class set-up (Synchronous)	
2. Jan 17 - 23	Recap of basic concepts (Asynchronous)	Lab 0.1: Boot Camp
3. Jan 24 - 30	Distance Operations (Asynchronous)	Lab 1: Location Allocation
4. Jan 31 - Feb 6	Interpolation (Asynchronous)	Lab1 Contd.
5. Feb 7 - 13	Kriging (Asynchronous)	Lab 1 Contd.
6. Feb 14 - 20	Kriging Contd. (Asynchronous)	Lab2: Interpolation
Break (Feb 22-27)		
7. Feb 28 - 6	Multi-Criteria Decision Analysis (Asynchronous)	Lab2 Contd.
8. Mar 7 - 13	Analysis using Spatial Database (Synchronous)	Lab3: Kriging

9. Mar 7 - 13	Analysis using Spatial Database Contd. (Synchronous) (Start working on Special Topic)	Lab 3 Contd.
10. Mar 14 - 20	Dedicated time to work on Special topic	Lab 4: MCDA
11. Mar 21 - 27	Dedicated time to work on Special topic	Lab 4 Contd.
12. Mar 28 - Apr 3	Present Special Topic (Synchronous)	Lab 5: PostGIS
13. Apr 4 - 10	Present Special Topic (Synchronous) (Special Topic write up due)	Lab 5 Contd.
14. Apr 12	Buffer Day	

VI. Evaluation:

- Boot Camp: 5%
- Labs
 - Lab 1: 15%
 - Lab 2 and 3: 10% each
 - Lab 4: 15%
 - Lab 5: 20%
- Special Topic
 - Presentation: 10%
 - Report: 15%

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.

Late Policy: All submissions are online at cuLearn. No late assignments will be accepted, with the exception of medical issues/illness or if you have already arranged for an academic accommodation as described in subsequent sections of this syllabus. In such cases you must make arrangements with the course instructor at least 24 hours prior to the due date. It is your responsibility to ensure that the instructor or TA receive your submitted hard copies. If you are unable to submit an assignment in cuLearn, it is recommended that you email the instructor or TA with a copy. However, this option should only be considered as a last resort.

Lecture/Lab attendance: This module is delivered in a blended manner. While attendance to synchronous sessions is not recorded, it is highly recommended that you attend all sessions.

VII. Statement on Plagiarism

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;

Plagiarism is a serious offence that cannot be resolved directly by 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.

VIII. Requests for Academic Accommodations

Academic Accommodation

Carleton provides ***academic accommodation to students*** for reasons of disability, religious observance, pregnancy and/or parental leave, sexual violence, and student activities.

Providing accommodations simply means providing alternatives to students who cannot perform the essential requirements of their academic programs due to the reasons mentioned above. At no time does academic accommodation undermine or compromise the learning objectives that are established by the academic authorities of the university.

This section provides only a brief overview of the accommodations policy and process. Please contact ***Equity and Inclusive Communities*** for a full explanation.

Religious Observation

A request should be made in the first two weeks of the academic term, or as soon as possible where the scheduling of an event or activity conflicting with a religious obligation does not appear in the course outline or calendar. A list of multi-faith holy days is accessible through the ***Equity Services website***. Instructors can also contact Equity Services to confirm the eligibility of a religious event or practice.

Pregnancy and/or Parental Leave

Requests for parental leave must be made in writing to the Registrar's Office, or in the case of graduate students, to the Office of the Dean of Graduate and Postdoctoral Affairs.

A student who is pregnant may request a temporary modification to her program (e.g., laboratory or field work). The student should meet with the instructor(s). The department chair/director and the faculty dean can assist in the discussion. An Equity Services advisor can also be consulted if a student has questions about pregnancy and/or parental leave.

Students with Disabilities

Carleton is strongly committed to providing access and accommodation for all individuals with identified and duly assessed disabilities. The university has a ***Senate-approved policy on academic accommodation*** that forms part of its human rights policy. The policy promotes efforts to accommodate students with disabilities so that they will have the opportunity to meet learning outcomes and be fairly evaluated in their performance. In no case, however, does

academic accommodation negotiate away, lower, or remove the academic standards and learning outcomes of any course or program, rule, regulation, or policy at the university.

Some students with disabilities may require special accommodations for tests and exams. In these cases, students must present you with a signed accommodation form from the Paul Menton Centre detailing their accommodation needs well in advance of the date of an exam. A copy of the [***Paul Menton Centre accommodations policy can be found here.***](#)

Survivors of Sexual Violence

As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and where survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit [***carleton.ca/sexual-violence-support.***](http://carleton.ca/sexual-violence-support)

Accommodation for Student Activities

Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor 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, see [***the policy.***](#)

Contacts

Equity Services 503 Robertson Hall 613-520-5622 <i>equity@carleton.ca</i> <i>carleton.ca/equity</i>	Paul Menton Centre 501 University Centre 613-520-6608 <i>pmc@carleton.ca</i> <i>carleton.ca/pmc</i>
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