Fall 2020 - Geospatial Analysis - GEOM3005

Department of Geography and Environmental Studies

Carleton University

**Academic Year**: Fall 2020

**Course Title:** Geospatial Analysis

**Department:** Department of Geography and Environmental Studies

**Course number:** GEOM 3005

**Instructor:** Dipto Sarkar ([dipto.sarkar@carleton.ca](mailto: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 and network analysis.

**II. Preclusions:** 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​):**

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| --- | --- | --- |
| Week | Tuesday | Thursday |
| 1. Sept 10 |  | Class set-up |
| 2. Sept 15 & 17 | Recap of basic concepts | Lab 0.1: Boot Camp |
| 3. Sept 22 & 24 | Distance Operations | Lab 1: Location Allocation |
| 4. Sept 29 & Oct 1 | Distance Operations Contd. | Lab1 Contd. |
| 5. Oct 6 & 8 | Interpolation | Lab 1 Contd. |
| 6. Oct 13 & 15 | Kriging | Lab2: Interpolation |
| 7. Oct 20 & 22 | Kriging Contd. | Lab2 Contd. |
| Break | | |
| 8. Nov 3 & 5 | Multicriteria Decision Analysis | Lab3: Kriging |
| 9. Nov 10 & 12 | PROJECT PROPOSALS DUE | Lab 3 Contd. |
| 10. Nov 17 & 19 | Proposal Discussion (by appointment) | Lab 4: Zombie Apocalypse |
| 11. Nov 24 & 26 | Lab 4 Contd. | Lab 4 Contd. |
| 12. Dec 1 & 3 | Work on Project | Work on Project |
| 13. Dec 8 & 10 | Work on Project | PROJECT SUBMISSION |

**VI. Evaluation**:

* Labs
  + Lab 1-3: 10% each
  + Lab 4: 20%
* Project
  + Proposal: 10%
  + Execution and Report: 30%
* Participation: 10%
  + Class/Discussion Board/Twitter

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;
* 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 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**

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 click here.

**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 click here.

**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).

**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: <https://carleton.ca/equity/sexual-assault-support-services>

**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. 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. <https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf>