



Department of Geography – Orillia Campus.

Geography 2232 ‘Intro GIS and Geomatics’

An introduction to the fundamental principles and techniques that comprise the field of geomatics, especially Geographic Information Systems (GIS). Topics include the collection and visualization of geographical data through various means, database construction and manipulation, and exposure to analog and digital spatial technologies, such as GPS, surveying and digital aerial photography.

Credit weight: 0.5.

Type C: Engineering, Mathematical and Natural Sciences

[Online asynchronous delivery for Winter 2021](#)

Class Schedule - This class is *asynchronous*, so you can do it each week at your most preferred time, and I am available online on both Tuesdays and Thursdays from 8-11am for live assistance.

Instructor: Lisa TUTTY BSc (hon) MSc **Contact information:**

Email: ltutty@lakeheadu.ca (*that is an “L” for Lisa*); please email using your lakeheadu email and put the course code in the subject line. You can generally expect a response within 48 hours. Skype is fleminggeomatics_Ltutty

Student help (office) hours: are Tuesdays and Thursdays from 8-11am

Course website: through D2L (you will find lectures, assignments, and labs, there, as well as much important information).

Course goals: The course is intended to provide you with some experience of how to represent various types of spatial data in the form of visual displays which more readily communicate information than raw data. In addition you will be given grounding in GIS principles and techniques to spatial data analysis that can lead to further study in this useful field. At the end of this course you will be more sensitive to the value of a cartographically sound map and will have been initiated into the world of GIS.

- introduction to raster and vector-based GIS;
- develop a working knowledge of ArcGIS software;
- learn the underlying principles of GIS database construction;
- learn to diagnose and manage errors associated with GIS; and
- learn common spatial data analysis techniques.

Marks breakdown:

<p>Weekly lab assignments</p> <ul style="list-style-type: none"> • Most of our time and effort in this course is spent on lab work, because in GIS we learn by doing, not by reading about it or hearing about it. The late penalty for labs is 10% per day, and none will be accepted after the marked labs are returned to your classmates. 	<p>65%</p>
<p>Weekly quizzes</p> <ul style="list-style-type: none"> • These 11 quizzes will test you on both lab and lecture concepts, they will be held on D2L. You cannot do makeup quizzes (or be excused) for any missed quizzes for any reason as each is available online for <i>at least</i> a week, but I will drop the two lowest quiz marks for each student at the end of the semester to allow for illness, late enrollment, Accessibility concerns, etc. 	<p>15%</p>
<p>Final exam</p> <ul style="list-style-type: none"> • This will be a lab exam, and it will test you on your ability to apply the concepts and skills that you have learned in the lab to real life data • <i>Typically</i> for this course you will have a two day window in which to complete the exam, i.e. you can write it at any time during that two day window 	<p>20%</p>
<p>Total</p>	<p>100%</p>

A+	90 to 100%	Outstanding understanding of the course concepts including integration of materials and ideas, ability to apply knowledge to situations
A	80 to 89%	
B	70 to 79%	Above average to excellent knowledge, ability to apply knowledge to situations
C	60 to 69%	Satisfactory knowledge including ability to recognise and apply major course concepts, and to progress to next level of course
D	50 to 59%	Some grasp of course concepts; will likely encounter difficulty with higher levels
E	40 to 49%	Failed to meet minimum requirements of the course
F	1 to 39%	Failure
F	0	Failure resulting from academic dishonesty

Mark descriptions from Lakehead University. Students are advised to refer to the University Calendar to ensure that they have adequate grades and/or average to proceed in their program. Grades in this course are numerical (not letters).

Course Resources

Course textbooks - Normally we would use the textbook "Introduction to Geographic Information Systems, 9th Ed" by Chang (2019) for this course, but I figure that you already have enough expenses during the pandemic. So, while you are welcome to use that textbook if you like, you could also choose to use this free (open-source) textbook: "Geospatial Analysis" by de Smith, Goodchild, and Longley (2020) available here: <https://spatialanalysisonline.com/HTML/index.html> or this other free one: <https://2012books.lardbucket.org/books/geographic-information-system-basics/index.html> I don't test on textbook material in this class, these textbooks are suggested only as an optional resource for you.

Course policies on lateness and absence:

Late submissions for assignments may be accepted however the late penalty is 10% per day, including weekends.

Absences and lateness: Due to the pandemic there has been a change for this term in the policies around illness. You may receive consideration for your late work (meaning no late penalty) if you submit an email to me at LTUTTY@LAKEHEADU.CA with this format:

Student Self-Declaration Email:

I am submitting this self-declaration as a request made in good faith for academic consideration due to illness that has temporarily impaired my physical health and ability to (write my exam/test) (submit my "X" assignment) as scheduled.

By making this declaration I am affirming these statements to be true. Once I have returned to good health, I will contact my professor directly via email to (arrange a new exam date) (arrange a new assignment submission date).

I understand that providing any false or misleading information, or using this self-declaration to delay or avoid fulfilling academic requirements, constitutes a breach of academic integrity as outlined in the Lakehead University's Academic Integrity and Policies.

The late penalty for assignments (without consideration as described above) is 10% per day late, including weekends. Late assignments should be submitted to Lisa in the exact same manner as the on time assignments (i.e. NEVER submit by email – submit it via D2L or via LUGDC as was originally requested).

Students will **not** be given another opportunity to write the final exam if it is missed a second time. In some cases, when extraordinary circumstances beyond a student's control prevent him/her from completing the rescheduled lab test, a student may be eligible to petition Enrolment Services to explain the circumstances.

Sequence of Topics

This is a tentative schedule of topics and is subject to change. The faculty reserves the right to change/alter the schedule of topics from time to time.

Please note: Jan 22nd 2021 is the final date to add courses. All due dates fall after this date for that reason.

Week/Date	Key Topics	Assignments/Tests
One Jan. 11 - 15	<ul style="list-style-type: none"> • Introduction, databases 	<i>Quiz 1 due: T26Jan</i> <i>Lab 1 (online GIS) due: F29Jan</i>
Two Jan. 18 - 22	<ul style="list-style-type: none"> • Map projections 	<i>Quiz 2 due: T2Feb</i> <i>Lab 2 (intro to ArcCatalog and ArcMAP) due: F5Feb</i>
Three Jan. 25 - 29	<ul style="list-style-type: none"> • Co-ordinate systems 	<i>Quiz 3 due: T9Feb</i> <i>Lab 3 (accessing spatial datasets) due: F12Feb</i>
Four Feb. 1 - 5	<ul style="list-style-type: none"> • Raster data 	<i>Quiz 4 due: T23Feb</i> <i>Lab 4 (projections) due: F26Feb</i>
Five Feb. 8 - 12	<ul style="list-style-type: none"> • Vector data 	<i>Quiz 5 due: T23Feb</i> <i>Lab 5 (raster) due: F26Feb</i>
Feb. 15 - 19	Reading Week	
Six Feb. 22 - 26	<ul style="list-style-type: none"> • Editing spatial data 	<i>Quiz 6 due: T2Mar</i> <i>Lab 6 (georeferencing) due: F5Mar</i>
Seven March. 1 - 5	<ul style="list-style-type: none"> • Geocoding 	<i>Quiz 7 due: T9Mar</i> <i>Lab 7 (cottage) due: F12Mar</i>
Eight March 8 - 12	<ul style="list-style-type: none"> • Overlay & Vector analysis 	<i>Quiz 8 due: T16Mar</i> <i>Lab 8 (geocoding) due: F19Mar</i>
Nine March 15 - 19	<ul style="list-style-type: none"> • Terrain and Raster analysis 	<i>Quiz 9 due: T23Mar</i> <i>Lab 9 (geoprocessing I) due: F26Mar</i>
Ten March 22 - 26	<ul style="list-style-type: none"> • Buffer and Least cost path analysis 	<i>Quiz 10 due: T30Mar</i> <i>Lab 10 (geoprocessing II) due: F2Apr</i>
Eleven March 29 - April 6 Good Friday – No classes Fri., April 2	<ul style="list-style-type: none"> • Jobs in GIS 	<i>Quiz 11 due: T6Apr</i> <i>Lab 11 (geoprocessing III) due: F9Apr</i>
Twelve April 5 - 13 Easter Monday – No classes Mon. April 5	<ul style="list-style-type: none"> • No lecture 	<i>Practice lab test (optional, not graded)</i>
Exam Period April 16 - 25, 2021 (10 days)		<i>Final Exam (20%)</i>

Final day of classes (Lakehead University Academic Schedule) is Tuesday, April 13, 2021.

Expectations for Successful Participation

1. Attend every class (they are available online, so you can go through a lecture presentation each week at your own pace).
2. Check myCourseLink regularly for announcements, reading and work assignments and course updates.
3. Ask questions if you need clarification (in student hours T and R 8-11am; or via email). Please ensure that you “sign” your email with your name and course number and send the email from your University account – I am teaching multiple courses.
4. Keep up with your course work. Read the designated material and complete the assigned labs so that you can stay on top of it each week. Things will snowball quickly if you let your coursework slide in GIS class.
5. Submit your assignments by the deadline! You are strongly advised not to wait until the last minute to submit your assignments in case you have computer problems. Ten percent per day late penalty is a steep penalty, best to submit your labs on time.

Student services:

Lakehead University has a **Student Health and Wellness Centre**. During the pandemic, there may be changes to normal operating procedures. Updated information can be found here: <https://www.lakeheadu.ca/students/wellness-recreation/student-health-and-wellness>

The University provides academic accommodations for students with disabilities in accordance with the terms of the Ontario Human Rights Code. This occurs through a collaborative process that acknowledges a collective obligation to develop an accessible learning environment that both meets the needs of students and preserves the essential academic requirements of the University's courses and programs.

Lakehead University has a **Student Accessibility Services (SAS)** office which provides support services and advocacy on behalf of students with disabilities. The SAS office is located in OA 1030 (Orillia Academic Building).

Phone: +1 (705) 330-4008 ext. 2103 Email: oraccess@lakeheadu.ca

Student Success Centre: There will be updated information soon -

<https://www.lakeheadu.ca/students/academic-success/student-success-centre>

Lakehead University Library services: Use it to search for journal articles, books, etc. They are also fabulous supporters of research if you need help for any of your classes! <http://library.lakeheadu.ca/>

Technology Services Centre Helpdesk: TSC Helpdesk is the liaison between Lakehead University's IT services and users (Students, Faculty & Staff and by extension to guests and visitors). The principal purpose of the Helpdesk is to provide quick resolution to inquiries. <https://www.lakeheadu.ca/faculty-and-staff/departments/services/tsc>

Academic integrity – <https://www.lakeheadu.ca/faculty-and-staff/policies>

Academic Integrity:

Academic integrity is fundamental to learning and scholarship at Lakehead University. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that the degree that you earn will be valued as a true indication of your individual academic achievement, and will continue to receive the respect and recognition it deserves. The University takes a most serious view of offences against academic honesty such as plagiarism, cheating and impersonation. Penalties for dealing with such offences will be strictly enforced.

The appropriate sections on plagiarism and other forms of misconduct may be found on the Lakehead University website.

Potential offences include, but are not limited to:

In papers and assignments:

- Using someone else's ideas or words without appropriate acknowledgement.

- Copying material word-for-word from a source (including lecture and study group notes) and not placing the words within quotation marks.
- Submitting your own work in more than one course without the permission of the instructor.
- Making up sources or facts.
- Including references to sources that you did not use.
- Obtaining or providing unauthorized assistance on any assignment including:
 - Working in groups on assignments that are supposed to be individual work;
 - Having someone rewrite or add material to your work while “editing”.
 - Lending your work to a classmate who submits it as his/her own without your permission.

On tests and exams:

- Using or possessing any unauthorized aid, including a cell phone.
- Looking at someone else’s answers
- Letting someone else look at your answers.
- Misrepresenting your identity.
- Submitting an altered test for re-grading.

Misrepresentation:

- Falsifying or altering any documentation required by the University, including doctor’s notes.
- Falsifying institutional documents or grades.

Neat 15 minute exercise from Cardiff University (Avoiding plagiarism):
https://xerte.cardiff.ac.uk/play_4216