Western SocialScience

Geography and Environment

GEOG 2220A – Geographic Information Science I
Course Syllabus*: Section 001, Fall 2022

This course is taught in-person

Syllabus subject to change

1. Course Information

Component	Section	Delivery Mode	Day/Time	Location
Lecture	001	In person	Tues 2:30 – 4:20 pm	NCB 113
Lab	002	In person	Weds 9:30 – 11:30 am	SSC 1059
Lab	003	In person	Weds 12:30 – 2:30 pm	SSC 1059
Lab	004	In person	Thurs 9:30 – 11:30 am	SSC 1059

*Details about design and delivery of the course are listed below in **Section 6**

Classes Start	Fall Reading Week	Classes End	Study day(s)	Exam Period
September 8	October 31-November 6	December 8	December 9	December 10-22

September 16, 2022: Last day to add a first-term half course
October 10, 2022: Thanksgiving Holiday
November 12, 2022: Last day to drop a first term half course without penalty

Course Instructor	Contact Information	Office Hours	Location
Dr. Agnieszka Leszczynski	aleszczy@uwo.ca	Tues 1 – 2 pm *starting Sept 21st	SSC 1402

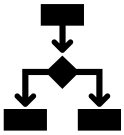
Teaching Assistant(s)	Contact Information	Office Hours	Location
TBA	**TBA**	Group lab office hours, **SEE DETAILS BELOW**	SSC 1059

☒ Office hours for Dr. Leszczynski will be held in-person

☒ Students will be able to drop into **group lab office hours** on the days and times specified below. Lab office hours are open to all GEOG 2220 students, irrespective of lab section (i.e., you can go to any lab office hour). Each lab office will be staffed by a TA.

Group Lab Office Hours (Drop-in, open to all GEOG 2220 students; *starting Sept 26th*)	
Day/Time	**Location**
Mondays 5:30 pm – 6:30 pm	SSC 1059
Tuesdays 1:30 – 2:30 pm	SSC 1059
Wednesdays 5:30 – 6:30 pm	SSC 1059

2. Calendar Description



An introduction to fundamentals and principles of Geographic Information Science, emphasizing both applied and theoretical aspects of digital mapping, spatial data handling, and spatial analysis using both vector and raster data. Practical skills are developed through the use of Geographic Information Systems.

2 lecture hours per week, 2 lab hours per week, 0.5 course
Prerequisite(s): None
Prerequisite checking is the student's responsibility

Senate Regulations state, "unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites."

3. Textbooks

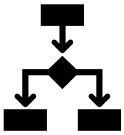
☒ **Required textbook:** Bolstad, P. (2019) GIS Fundamentals: A First Text on Geographic Information Systems, 6th ed. XanEdu.

☒ **Required lab manual:** Menke, K. (2019) Discover QGIS 3.x: A Workbook for Classroom or Independent Study. Locate Press.

- May be purchased as a pdf (e-book) from Locate Press for $34.99 USD. (https://locatepress.com/dq3)

☒ **Additional resources:** Any additional reading materials not included in the course textbook will be made available via the **Course Readings**, accessible via the **OWL** site for this course.

4. Course Objectives and Format



This course introduces students to both theoretical and applied foundations of Geographic Information Science. The objectives of the course are to:

- Familiarize students with the basic conceptual principles that underlie spatial data representation, handling, processing, and analysis in the digital environment of GIS (geographic information systems).
- Give students the opportunity to develop practical spatial data handling and analysis skills through hands-on GIS labs that guide students through a series of applied problem-solving tasks which demonstrate and implement the conceptual gleaned in lectures.

☒ **Attendance is required.**

☒ **Bring a USB or external HD to each lab – or you will be unable to save your work!**

All course material will be posted to OWL: http://owl.uwo.ca. Any changes will be indicated on the OWL site and discussed with the class.

Google Chrome or Mozilla Firefox are the preferred browsers to optimally use OWL; update your browsers frequently. Students interested in evaluating their internet speed, please click here. [Using the right browser is important, especially when using different features integrated with OWL]

If students need assistance, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

5. Learning Outcomes

Upon successful completion of this course, students will be able to:

- Understand in overview the fundamentals of geographic information, data models that underlie digital spatial representation, and how it is that spatial data are captured, stored, used, and disseminated;
- Identify and understand basic spatial data analysis methods, as well as the appropriateness of utilizing specific methods across different datasets and application contexts;
- Demonstrate a basic level of independent practical proficiency in handling, processing, analyzing, and representing spatial data in a digital software environment such as a GIS;
- Describe the principles that underlie positioning, positioning systems and map projections; and
- Understand some of the characteristics, availability, limitations, and potential pitfalls of using geospatial information across various domains of application.

6. Course Content and Schedule

Week	Lecture Topic	Readings	Lab Activity	Assignment Due
Week 1 • **Lec** Tues Sept 13th	• Part I: Course overview, logistics, and expectations • Part II: What is GIScience?	Bolstad, Ch. 1, "Introduction to GIS", pp. 1-23	**NO LAB**	

Week	Lecture Topic	Readings	Lab Activity	Assignment Due
Week 2 • **Lec** Tues Sept 20th • **Labs:** Weds Sept 21st & Thurs Sept 22nd	• Digital Map Design	Statistics NZ, "Design principles for maps" (**pdf via Course Readings in OWL** > search for "Week 2" tag)	**Lab 1:** Intro to QGIS & Digital Map Design **Lab office hours begin next Monday, Sept 26th, for getting help with Lab 1*	
Week 3 • **Lec** Tues Sept 27th • **Labs:** Weds Sept 28th & Thurs Sept 29th	• Coordinate Systems & Map Projections	Bolstad Ch. 3, "Geodesy, Datums, Map Projections & Coordinate Systems", pp. 87-107 & 116-133	**Lab 2:** Coordinate Systems & Map Projections ******Regularly scheduled lab office hours Mon - Weds*	**Lab 1 due*** **** due @ start of your scheduled lab section***
Week 4 • **Lec** Tues Oct 4th • **Labs:** Weds Oct 5th & Thurs Oct 6th	• All About Spatial Data	Schuurman Ch. 3, "The Devil Is In The Data" , pp. 53-75 (**pdf via Course Readings in OWL** > search for "Week 4" tag)	**Lab 3:** Working with Spatial Data	**Lab 2 due*** **** due @ start of your scheduled lab section***
Week 5 • **Lec** Tues Oct 11th	• Data Models	"Bolstad Ch. 2, "Data Models", pp. 27-59	**No lab** ****Lab office hours will be held for Lab 3 help this week***	

Week	Lecture Topic	Readings	Lab Activity	Assignment Due
Week 6 • **Lec** Tues Oct 18th • **Labs:** Weds Oct 19h & Thurs Oct 20th	• Working with Vector Data	Bolstad Ch. 9, "Basic Spatial Analysis", pp. 373-403	**Lab 4:** Working with Vector Data ***No lab office hours held this week***	**Lab 3 due*** **** due @ start of your scheduled lab section***
Week 7 • **Lec** Tues Oct 25h	• Term Project Instructions		**No lab** ***No lab office hours held this week***	
OCT 31st – NOV 6th	**FALL READING WEEK**			
Week 8 • **Lec** Tues Nov 8th • **Labs:** Weds Nov 9th & Thurs Nov 10th	• Vector Analysis	Bolstad Ch. 9, "Basic Spatial Analysis", pp. 404-419	**Lab 5:** Vector Analysis ***Lab office hours will be held for Lab 4 help this week***	**Lab 4 due*** **** due @ start of your scheduled lab section***
Week 9 • **Lec** Tues Nov 15th **Labs:** Weds Nov 16th & Thurs Nov 17th	• Working with Raster Data	Bolstad Ch. 10, "Topics in Raster Analysis", pp. 445-475	**Lab 6:** Working with Raster Data ******Regularly scheduled lab office hours Mon - Weds*	**Lab 5 due** **** due @ start of your scheduled lab section***

Week	Lecture Topic	Readings	Lab Activity	Assignment Due
Week 7 • **Lec** Tues Oct 25h	• Term Project Instructions		**No lab** ***No lab office hours held this week***	
OCT 31st – NOV 6th	**F A L L R E A D I N G W E E K**			
Week 8 • **Lec** Tues Nov 8th • **Labs:** Weds Nov 9th & Thurs Nov 10th	• Vector Analysis	Bolstad Ch. 9, "Basic Spatial Analysis", pp. 404-419	**Lab 5:** Vector Analysis ***Lab office hours will be held for Lab 4 help this week***	**Lab 4 due*** *** due @ start of your scheduled lab section***
Week 9 • **Lec** Tues Nov 15th • **Labs:** Weds Nov 16th & Thurs Nov 17th	• Working with Raster Data	Bolstad Ch. 10, "Topics in Raster Analysis", pp. 445-475	**Lab 6:** Working with Raster Data **Regularly scheduled lab office hours Mon - Weds*	**Lab 5 due** *** due @ start of your scheduled lab section***
Week 10 • **Lec** Tues Nov 22nd • **Labs:** Weds Nov 23rd & Thurs Nov 24th	• Raster Analysis	Bolstad Ch. 11, "Terrain Analysis"	**Lab 7:** Raster Analysis **Regularly scheduled lab office hours Mon - Weds*	**Lab 6 due** *** due @ start of your scheduled lab section***

Week	• Lecture Topic	Readings	Lab Activity	Assignment Due
Week 11 • **Lec** Tues Nov 29th	• Part I: GIScience ethics • Part II: TBA	Readings TBC	**No lab** Term project consulting by appointment: 10 minute sign-up slots will be opened in advance ***Lab office hours will be held for Lab 4 help this week***	**Lab 7 due by 3:50 pm on day of your regularly scheduled lab section (Weds Nov 30th or Thurs Dec 1st)** **>> to hand in your assignment, place it in the assignment submission drop-box outside the Geography & Env main office (SSC 2322)**
Week 12 • **Lec** Tues Dec 6th	• Final Exam Review		Term project consulting by appointment: 5 minute sign-up slots will be opened in advance	**Term Project due by 11:55 pm on Thurs, Dec 8th** **>> to hand in your project, place it in the assignment submission drop-box outside the Geography & Env main office (SSC 2322)**

7. Communication

☒ Students should check the OWL site every 24 – 48 hours

☒ **Email protocol:**

- Put **"GEOG 2220"** in the **subject line** of every email you send
- Standard email response time is 24-48 hours, *excluding* weekends and holidays
- Emailed assignments will not be accepted for grading
- Dr. Leszczynski and the TAs **do not answer technical GIS lab questions over email**
  - We are unable to see your screen, and to identify where something went 'wrong' (e.g., why something isn't working, or why your screen doesn't look like it should') – this is because the error likely occurred several steps before you got 'stuck', and we need to actually 'see' you retrace your steps in person.
  - **All requests for help with lab assignments must be made in-person during the lab office hours** (held Mon, Tues, and Weds – see item 6: Course Schedule)
  - Similarly, **any questions about your lab grade must be raised with your TA *in person*** (bring your assignment with you to discuss). TAs will not respond to questions about lab grades over email.

8. Evaluation

Below is the evaluation breakdown for the course. Any deviations will be communicated.

Assessment	Format	Weighting	Due Date
Laboratory assignments (7 assignments)	Maps & written response questions	50% (each lab is weighted equally)	See course schedule
Term Project	Map & written report	20%	Dec 8th by 11:55 pm via OWL submission
Final exam	Mixed format	30%	Final exam period, 2 hrs

Students are responsible for material covered in the lectures, labs, as well as the assigned chapters/sections in the text.

☒ The evaluation methods described in the course outline are essential requirements for the course. This includes the final exam. **No alternative mode of assessment will be offered in lieu of the final exam, and the final exam will not be reweighted to other assessed components of the course. If you do not write the final exam, you will receive 0 for this component of the course.**

☒ **To pass the course, you must pass the lab component** (achieve 50% overall on the labs in aggregate – i.e., you do not need to pass every lab, but you must pass the labs overall)

☒ After an assessment is returned, students should wait 24 hours to digest feedback before contacting their TA. If you have questions about your lab grade on any one assignment, please raise this directly in person with your TA *first* prior to contacting Dr. Leszczynski. To ensure a timely response, reach out within 7 days (i.e., within a week of your lab being handed back to you).

Students are responsible for material covered in the lectures as well as the assigned chapters/sections in the text.

Click here for a detailed and comprehensive set of policies and regulations concerning examinations and grading. The table below outlines the University-wide grade descriptors.

A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work which is clearly above average
B	70-79	Good work, meeting all requirements, and eminently satisfactory
C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable
F	below 50	Fail

Details about lab assignment submission:

☒ **All lab assignments must be submitted in hardcopy form (i.e., printed out, with maps printed in colour, all pages collated and stapled together)**

- Except where stated otherwise, **all assignments are due at the start of your regularly scheduled lab section** in the week specified as per the Course Schedule (see item **6** below)
  - There is a **15 minute grace period** to account for printing issues/traffic, etc. **Any assignment handed >15 mins after the start of your lab section will be considered late,** and late penalties will apply (see information provided below)

☒ Emailed assignments will not be accepted for grading.

☒ The **term project assignment** will be submitted **digitally** as a collated **pdf** (single file) submitted via the **OWL assignment submission portal** by the date/time stated in the Course Schedule (item 6 above).

Information about late or missed evaluations:

☒ **Missed work must be completed within 2 business days (48 hours)**. Missed assignments/assessments not submitted within 48 hours of the original submission date will not be accepted for grading. **Business days are considered as ending at 3:50 pm**.

- Late assignments must be submitted in hard-copy (printed, collated, and stapled together) into the **assignment submission drop box located outside of the Geography & Environment main office (SSC 2322) no later than 3:50 pm** on the day of submission (otherwise, it counts as being submitted the next day).
- Emailed assignments will not be accepted for grading.

- Except where supported by notification from your home faculty's Academic Advising office sent directly to Dr. Leszczynski, all late assignments are subject to the following **late penalties**:
  - 10% for each 24 hour period (business day ending 3:50 pm), for a maximum of 20%

☒ Assignments will be accepted past the deadline without late penalty only in instances where Dr. Leszczynski is notified of an academic accommodation directly by Academic Advising in your home faculty (see item 9: Accommodation Policies below).

☒ **Do not email Dr. Leszczynski (or your TAs) with requests for extension. These requests will not be responded to**. See the bullet point immediately above re: the need to proceed via Academic Advising in your home faculty.

Grades will not be adjusted on the basis of need. It is important to monitor your performance in the course. Remember: *You* are responsible for your grades in this course.

9. Accommodation Policies

Students with disabilities work with Accessible Education (formerly SSD) which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The accommodation policy can be found here: Academic Accommodation for Students with Disabilities.

Academic Consideration for Student Absence

The University recognizes that a student's ability to meet their academic responsibilities may, on occasion, be impaired by medical illness. Illness may be acute (short term), or it may be chronic (long term), or chronic with acute episodes. The University further recognizes that medical situations are deeply personal and respects the need for privacy and confidentiality in these matters. However, in order to ensure fairness and consistency for all students, academic accommodation for work representing 10% or more of the student's overall grade in the course shall be granted only in those cases where there is documentation indicating that the student was seriously affected by illness and could not reasonably be expected to meet their academic responsibilities.

Policy on Academic Consideration for Medical Illness - Undergraduate Students

Student Medical Certificate (SMC)

Religious Accommodation

Students should consult the University's list of recognized religious holidays, and should give reasonable notice in writing, prior to the holiday, to the Instructor and an Academic Counsellor if their course requirements will be affected by a religious observance. Additional information is given in the Western Multicultural Calendar.

10. Make-up Examinations

Final exam makeups will be granted with approved documentation only. All documentation for missed exams must be provided to the Academic Counselling Office within 48 hours of the scheduled exam, otherwise the instructor will assign a grade of zero.

The format and content of make-ups may differ substantially from the scheduled test or examination.

11. Lecture materials and course content

All course materials – including lecture slides – are the copyright of Dr. Leszczynski, and may not be disseminated, posted, shared, or made available online through any course notes websites, or any other channels.

☒ If Dr. Leszczynski finds copies of lecture slides or lab materials posted on external sites, and .pdf versions of lecture slides will cease to be provided for students.

12. Use of Electronic Devices

No electronic devices will be allowed during tests and examinations.

Video and/or audio capture of lectures and lab sessions is explicitly prohibited, except for instances covered by the Accommodations Policies (see item 9 above) and where permission has been obtained from Dr. Leszczynski

13. How to Be Successful in this Class:

Students enrolled in this class should understand the level of autonomy and self-discipline required to be successful.

1. Keep up with the labs, aiming to hand these in on time. Leave yourself ample time to complete your lab assignments such that, if you run into technical difficulties and/or have questions, there is enough time for a TA to get back to you (via email; response time 24-48 hrs) and/or you plan ahead to come to the lab drop-in office hours.
2. Make friends in your GIS lab section. You are encouraged to work and problem solve together; however, your submitted work (assignments handed in for grading) must be your own.
3. Make it a daily habit to log onto OWL to ensure you have seen everything posted to help you succeed in this class.
4. Take notes as you go through the lesson material. Keeping handwritten notes or even notes on a regular im a Word document – or added to pdfs of lecture slides - will help you learn more effectively.
5. Do not be afraid to ask questions. If you are struggling with a topic, contact your instructor(s) and or teaching assistant(s). In-person office hours are often the best way of getting help.

14. Continuity of Education Plan (in-person class pivoting to online learning)

In the event of a COVID-19 resurgence during the course that necessitates the university to direct courses move away from face-to-face interaction, all remaining course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructor.

15. Information on COVID-19

Masking Guidelines

Students will be expected to wear triple layer, non-medical, paper masks at all times in the classroom as per University policy and public health directives. Students who are unable to wear a mask must seek formal accommodation through Western Accessible Education, and present medical documentation.

Students are not permitted to eat or drink while in class to ensure masks stay in place. Students will be able to eat and drink outside of the classroom during scheduled breaks.

Students unwilling to wear a mask as stipulated by Western policy and public health directives will be referred to the Dean, and such actions will be considered a violation of the student Code of Conduct.

Course Absences due to Daily COVID Screening Questionnaire

Missed assessments (e.g., presentations, essays, quizzes, tests, midterms, etc.) require formal academic considerations (typically academic counselling).

16. Academic Offences

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence.

☒ While you are encouraged to work together with peers in your class to problem solve, **your submitted work must be your own, and demonstrate independence of practical application and assignment completion.**

- For instance, you and a classmate/friend cannot both work on the 'same' map file (GIS project file), completing different aspects of the task, and then submit the same output/ map for grading.
- Similarly, you and a classmate cannot submit the same wording in response to written questions.

17. Western's Commitment to Accessibility

The Department of Geography and Environment strives at all times to provide accessibility to all faculty, staff, students and visitors in a way that respects the dignity and independence of people with disabilities.

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 519-661-2147 for any specific question regarding an accommodation. Information regarding accommodation of exams is available on the Registrar's website.

More information about "Accessibility at Western" is available.

18. Mental Health

If you or someone you know is experiencing distress, there are several resources here at Western to assist you. Please visit Western's Health and Wellness website for more information on mental health resources.

19. Support Services

Western's Support Services
Student Development Centre

20. Important Dates

September 8: Classes resume
September 16: Last day to add a first term half course
October 10: Thanksgiving Holiday – Department Office Closed
October 31 to November 6: Fall Reading Week (No classes; Department Office open)
November 12: Last day to drop a first term half course without penalty
November 30: Last day to drop a full course without penalty
December 8: Classes end
December 9: Study day
December 10-22: Examination Period