

## GEOG 2220B – Geographic Information Science I Course Syllabus\* Winter 2022

This course is taught in-person

*\*Syllabus subject to change*

### 1. Course Information



<b>ONLINE DELIVERY DETAILS</b> <i>(until at least Jan 31<sup>st</sup>)</i>			
	Delivery Mode	Day/Time	Zoom Details:
<b>Lecture</b>	Synchronous	Tues 12:30 – 2:30 <i>*begin Jan 11</i>	Meeting ID: 946 0438 6976 Passcode: 522870
<b>Lab Section 003</b>	Synchronous	Mon 9:30 – 11:30 <i>*begins Jan 17</i>	Meeting ID: 985 4422 8824 Passcode: 678306
<b>Lab Section 004</b>	Synchronous	Weds 9:30 – 11:30 <i>*begins Jan 12</i>	Meeting ID: 975 4849 1334 Passcode: 694170
<b>Lab Section 005</b>	Synchronous	Weds 11:30 – 1:30 <i>*begins Jan 12</i>	Meeting ID: 930 5010 0053 Passcode: 986350
<b>Lab Section 006</b>	Synchronous	Thurs 9:30 – 11:30 <i>*begins Jan 13</i>	Meeting ID: 968 9800 0421 Passcode: 491565

<b>IN-PERSON DELIVERY DETAILS</b> <i>(once in-person classes resume)</i>			
	Delivery Mode	Day/Time	Location
<b>Lecture</b>	In-person	Tues 12:30 – 2:30	3M 3250
<b>Lab Section 003</b>	In-person	Mon 9:30 – 11:30	SSC 1059
<b>Lab Section 004</b>	In-person	Weds 9:30 – 11:30	SSC 1059
<b>Lab Section 005</b>	In-person	Weds 11:30 – 1:30	SSC 1059
<b>Lab Section 006</b>	In-person	Thurs 9:30 – 11:30	SSC 1059

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

Classes Start	Spring Reading Week	Classes End	Study day(s)	Exam Period
January 10	February 21-25	April 8	April 9	April 10-30

January 18, 2022: Last day to add a second-term half course

March 14, 2022: Last day to drop a second term half course without penalty



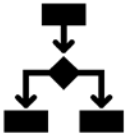
Course Instructor	Contact Information	Office Hours
Dr. Agnieszka Leszczynski	aleszczy@uwo.ca	Tues 2:45-3:45 * <i>start Jan 18</i>  online (until Feb 1): Zoom Meeting ID: 954 7438 5487 Passcode: 134478  once in-person resumes: SSC 2425

Teaching Assistant(s)	Contact Information	Office Hours
Stanley Ho, Huiyan He, Jayden Chang, Nafiseh Sorboni	<a href="mailto:geog2220@uwo.ca">geog2220@uwo.ca</a> * <i>this email will start being monitored Mon Jan 10</i>	Fri 11:30-1:30 * <i>start Jan 21</i>  online (until Feb 1): Zoom Meeting ID: 920 7496 7416 Passcode: 858199  once in person: SSC 1059



- Office hours for Dr. Leszczynski and TAs will be held synchronously or in-person, depending on the current mode of delivery for Western courses.
- Students will be able to drop into **group lab office hours** on Fridays from 11:30-1:30 in SSC 1059 OR virtually, depending on the current mode of delivery for Western courses.

## 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



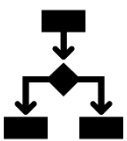
☒ **Required textbook:** Bolstad, P. (2019) GIS Fundamentals: A First Text on Geographic Information Systems, 6<sup>th</sup> ed. XanEdu.

☒ **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.

Missed work must be completed within 48 hours. Missed assignments/assessments not submitted within 48 hours of the original submission date will not be accepted for grading.

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 Assigned	Lab Due
<b>Week 1</b> • Lec Tues Jan 11 <sup>th</sup>	<ul style="list-style-type: none"><li>• Course overview, logistics, and expectations</li><li>• What is GIScience?</li></ul>	Bolstad, Ch. 1, "Introduction to GIS", pp. 1-23	<b>NO LAB</b>	

Week	Lecture Topic	Readings	Lab Assigned	Lab Due
<b>Week 2</b> <ul style="list-style-type: none"> <li>• <b>Lec</b> Tues Jan 18<sup>th</sup></li> <li>• <b>Labs:</b> Weds Jan 19<sup>th</sup>, Thurs Jan 20<sup>th</sup>, Mon Jan 24<sup>th</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Digital Map Design</li> </ul>	Statistics NZ, "Design principles for maps" <b>(pdf via Course Readings in OWL &gt; search for "Week 2" tag)</b>	<b>Lab 1:</b> Intro to QGIS & Digital Map Design	
<b>Week 3</b> <ul style="list-style-type: none"> <li>• <b>Lec</b> Tues Jan 25<sup>th</sup></li> <li>• <b>Labs:</b> Weds Jan 26<sup>th</sup>, Thurs Jan 27<sup>th</sup>, Mon Jan 31<sup>st</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Coordinate Systems &amp; Map Projections</li> </ul>	Bolstad Ch. 3, "Geodesy, Datums, Map Projections & Coordinate Systems", pp. 87-107 & 116-133	<b>Lab 2:</b> Coordinate Systems & Map Projections	<b>Lab 1 due</b>
<b>Week 4</b> <ul style="list-style-type: none"> <li>• <b>Lec</b> Tues Feb 1<sup>st</sup></li> <li>• <b>Labs:</b> Weds Feb 2<sup>nd</sup>, Thurs Feb 3<sup>rd</sup>, Mon Jan 7<sup>th</sup></li> </ul>	<ul style="list-style-type: none"> <li>• All About Spatial Data</li> </ul>	Schuurman Ch. 3, "The Devil Is In The Data", pp. 53-75 <b>(pdf via Course Readings in OWL &gt; search for "Week 4" tag)</b>	<b>Lab 3:</b> Working with Spatial Data	<b>Lab 2 due</b>
<b>Week 5</b> <ul style="list-style-type: none"> <li>• <b>Lec</b> Tues Feb 8<sup>th</sup></li> <li>• <b>Labs:</b> Weds Feb 9<sup>th</sup>, Thurs Feb 10<sup>th</sup>, Mon Feb 14<sup>th</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Data Models</li> </ul>	"Bolstad Ch. 2, "Data Models", pp. 27-59	<b>No lab</b>	<b>Lab 3 due</b>

Week	Lecture Topic	Readings	Lab Assigned	Lab Due
<b>Week 6</b> <ul style="list-style-type: none"> <li>• <b>Lec</b> Tues Feb 15<sup>th</sup></li> <li>• <b>Labs:</b> Weds Feb 16<sup>th</sup>, Thurs Feb 17<sup>th</sup>, <b>Mon Mar 1<sup>st</sup></b></li> </ul>	<ul style="list-style-type: none"> <li>• Vector Analysis I</li> </ul>	Bolstad Ch. 9, "Basic Spatial Analysis", pp. 404-419	<b>Lab 4:</b> Working with Vector Data	
<b>FEB 21<sup>st</sup> – 25<sup>th</sup></b>	<b>WINTER READING WEEK</b>			
<b>Week 7</b>	<ul style="list-style-type: none"> <li>• Professor away at academic conference; no lectures or labs* this week (<i>except for Mon Lab Section: Lab 4 will be held on Mar 1<sup>st</sup></i>)</li> <li>• Designated time to work on term project.</li> </ul>			<b>Lab 4 due</b>
<b>Week 8</b> <ul style="list-style-type: none"> <li>• <b>Lec</b> Tues Mar 8<sup>th</sup></li> <li>• <b>Labs:</b> Weds Mar 9<sup>th</sup>, Thurs Mar 10<sup>th</sup>, Mon Mar 14<sup>th</sup></li> </ul>	Vector Analysis II	Bolstad Ch. 9, "Basic Spatial Analysis", pp. 404-419	<b>Lab 5:</b> Vector Analysis	
<b>Week 9</b> <ul style="list-style-type: none"> <li>• <b>Lec</b> Tues Mar 15<sup>th</sup></li> <li>• <b>Labs:</b> Weds Mar 16<sup>th</sup>, Thurs Mar 17<sup>th</sup>, Mon Mar 21<sup>st</sup></li> </ul>	Raster Analysis I	Bolstad Ch. 10, "Topics in Raster Analysis", pp. 445-475	<b>Lab 6:</b> Working with Raster Data	<b>Lab 5 due</b>

Week	Lecture Topic	Readings	Lab Assigned	Lab Due
<b>Week 10</b> <ul style="list-style-type: none"> <li>• <b>Lec</b> Tues Mar 22<sup>nd</sup></li> <li>• <b>Labs:</b> Weds Mar 23<sup>rd</sup>, Thurs Mar 24<sup>th</sup>, Mon Mar 28<sup>th</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Raster Analysis II</li> </ul>	Bolstad Ch. 11, "Terrain Analysis"	<b>Lab 7:</b> Raster Analysis	<b>Lab 6 due</b>
<b>Week 11</b> <ul style="list-style-type: none"> <li>• <b>Lec</b> Tues Mar 29<sup>th</sup></li> <li>• <b>Labs:</b> see <i>info under Labs column</i></li> </ul>	<ul style="list-style-type: none"> <li>• GIScience ethics</li> <li>• Digital location, surveillance &amp; privacy</li> </ul>	Leszczynski, "Geoprivacy" <b>(pdf via Course Readings in OWL &gt; search for "Week 11" tag)</b>	Weds (Mar 30 <sup>th</sup> ) & Thurs (Mar 31 <sup>st</sup> ) labs this week are open to all students for drop-in project consulting	<b>Lab 7 due</b> <b>FINAL PROJECT DUE FRI APR 1<sup>st</sup> by 3:59 PM electronically via OWL submission</b>

## 7. Communication



- Students should check the OWL site every 24 – 48 hours
- For any other communication, the centrally administered **e-mail account** provided to students – i.e., your "@uwo.ca" email address - will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner. You can read about the privacy and security of the UWO email accounts [here](#).
- Emails will be monitored Monday - Friday; students will receive a response in 24 – 48 hours **excluding weekends**.
- If you have **lab specific questions**, attend the **drop-in lab office hours** (Fridays 11:30 – 1:30 in SSC 1059) or email **geog2220@uwo.ca**

## 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%	April 1 <sup>st</sup> by 3:59 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.

- 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)
- Except where otherwise indicated, all assignments are due at the start of the lab section** in the week that the lab is indicated as being due Any labs submitted **>15 minutes** after the start of a scheduled lab section will be considered late.
- Assignments will be accepted up to 48 hrs after their scheduled due date, excluding weekends (e.g., if your lab is due on a Thursday, you have until Monday to hand it in).
- Instructions for assignment submission:**
  - All assignments are to be **typed, and** submitted **electronically in pdf format (i.e., with a .pdf file extension)**, via the OWL submission portal. All maps must be **generated in colour**.
- 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 with your TA first**. To ensure a timely response, reach out within 7 days (i.e., within a week of your lab being handed back to you).

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

### Information about late or missed evaluations:

- Assignments (labs, final project) will not be **accepted for grading more than 48 hours (excluding weekends) after the scheduled due date & time**.



- e.g., if your lab assignment is due on a Wednesday, you have until Friday to submit it. If it is due on a Thursday, you have until Monday to submit it for grading.
  - See details below for how this applies to late assignments submitted with and without illness self-reports.
- Late assignments** are to be submitted to the Assignment Drop-Box outside the Geography & Environment main office, SSC 2322. Assignments dropped off by 3:59 pm will be considered as submitted on the day in which they were dropped off.
- e.g., your lab is due on Wednesday at the start of your 9:30 am lab session. You submit it on Thursday by dropping it into the Assignment Drop-Box outside the Department main office. As long as the assignment is time-stamped as being received by 4:00 pm on Thursday, it will only be considered 24 hrs late.
- Late assessments without illness self-reports** will be subject to a late penalty of 10%/24 hour period up to a maximum of 20% (where/when submitted within 48 hours of the scheduled submission deadline).
- Late assessments with illness self-reports** should be submitted within 24 hours of submission of the last illness self-report.
- Attach (staple) a copy of the acknowledgement email indicating that your illness self-report has been accepted to your assignment.
  - Illness self-reports will only be accepted as applying to scheduled submission dates.
  - Illness self-reports do not extend the 48 hour post-deadline period for the submission of late assignments, but a late penalty will not apply for the first 24 hrs or full 48 hrs post submission deadline, depending on the temporal window covered by your illness self-report.

**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

Students will have up to two (2) opportunities during the regular academic year to use an on-line portal to self-report an absence during the term, provided the following conditions are met: the absence is no more than 48 hours in duration, and the assessment for which consideration is being sought is worth 30% or less of the student's final grade. Students are expected to contact their instructors within 24 hours of the end of the period of the self-reported absence, unless noted on the syllabus. Students are not able to use the self-reporting option in the following circumstances:

- for exams scheduled by the Office of the Registrar (e.g., December and April exams)
- absence of a duration greater than 48 hours,

- assessments worth more than 30% of the student's final grade,
- if a student has already used the self-reporting portal twice during the academic year

If the conditions for a Self-Reported Absence are *not* met, students will need to provide a Student Medical Certificate if the absence is medical, or provide appropriate documentation if there are compassionate grounds for the absence in question. Students are encouraged to contact their Faculty academic counselling office to obtain more information about the relevant documentation.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. **All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a student's Home Faculty.**

For Western University policy on Consideration for Student Absence, see

[Policy on Academic Consideration for Student Absences - Undergraduate Students in First Entry Programs](#)

and for the Student Medical Certificate (SMC), see:

[http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/medicalform.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf).

### **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**

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. Use of Electronic Devices**

**The use of electronic devices for purposes of recording video or audio of lectures or labs is strictly prohibited.** This means that you cannot audio or video record the instructor, TAs, or other members of the lab teaching staff.

- If you require an accommodation on this policy, please contact the instructor (Dr. Leszczynski). For further information about accommodations, please see item 17 (Western's Commitment to Accessibility) below.

☒ **Phones are to remain put away during class** (i.e., in your schoolbag, pocket, etc.). If you must make/take an urgent phone call or send/read a text, please step outside of the class to do so.

☒ **No electronic devices will be allowed during tests and examinations.**

## 12. Lecture materials and course content

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

## 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 Word document 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. Course delivery with respect to the COVID-19 pandemic

Although the intent is for this course to be delivered in-person, the changing COVID-19 landscape may necessitate some or all of the course to be delivered 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 assessments affected will be conducted online as determined by the course instructor.

**When deemed necessary**, tests and examinations in this course will be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide personal information (including some biometric data) and the session will be recorded. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at: <https://remoteproctoring.uwo.ca>.

## 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 self-reported absences and/or academic counselling). [Methods for dealing with missed work and course content are at the discretion of the instructor(s). Students should be aware that some learning outcomes cannot be easily made up and may need to be completed in a subsequent year. Your instructor will provide you with further information as to how this applies within this course.

Students who demonstrate a pattern of routinely missing coursework due to self-reported COVID symptoms, and therefore do not demonstrate mastery of the learning outcomes of the course, will not receive credit for the course.]

## 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.

[Include this paragraph on plagiarism-checking software only if relevant. If not relevant delete the paragraph below]

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com ( <http://www.turnitin.com> ).

[Include this paragraph on computer marked multiple-choice tests if relevant. If not relevant delete the paragraph below]

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

## **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**

January 10: Classes resume

January 8: Last day to add a second term half course

February 21: Family Day – Department Office Closed

February 21-25: Spring Reading Week (No classes; Department Office open)

March 14: Last day to drop a first term half course without penalty

April 8: Classes end

April 9: Study days

April 10-31: Examination Period