

## GEOG 2220A – Geographic Information Science I Course Outline\*: Section 001 Fall 2023

This course is taught in-person

\*Syllabus subject to change

### 1. Course Information

\*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 7	October 30-November 5	December 8	December 9	December 10-22

September 15, 2023: Last day to add a second-term half course.

October 9, 2023: Thanksgiving Holiday.

November 13, 2023: Last day to drop a first term half course without penalty.



Course Instructor	Contact Information	Office Hours	Location
<b>Dr. Christopher Hewitt</b>	chewitt6@uwo.ca	Tuesday 1 - 2	SSC 2221

lab Demonstrators	Contact Information	Office Hours	Location
<b>Kathy Tang (Thursday)</b>	Ktang28@uwo.ca	TBA	TBA
<b>Karen Vankerkerle (Wednesday)</b>	kvanker@uwo.ca	TBA	TBA

Teaching Assistants	Contact Information	Office Hours	Location
<b>Naser Ahmed Kamaldeen Mohammed Mohammad Rokhafrouz William Yang</b>	TBA	Group Lab office hours, see details below	SSC 1316a

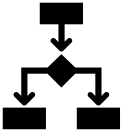


- Office hours for Dr. Hewitt will be held in-person.
- Students will be able to drop into **group lab office hours** on the days and times specified below. Lab office hours are open to all GEOG 2220 students, irrespective of lab section (i.e., you can go to any lab office hour). Each lab office will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

Group Lab Office Hours (Drop-in, open to all GEOG 2220 students; starting Sept 25th)	
Day/Time	Location
TBA	SSC 1316a
TBA	SSC 1316a
TBA	SSC 1316a
TBA	SSC 1316a

## 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. Textbook

**Required textbook:** Bolstad, P. & Manson, S. (2023) *GIS Fundamentals: A First Text on Geographic Information Systems*, 7th ed. XanEdu

- May be purchased as an e-book from GIS Fundamentals through Redshelf or VitalSource for \$18.00 USD. (<https://www.gisfundamentals.org/students>)



**Required lab manual:** Menke, K. (2022) *Discover QGIS 3.x: A Workbook for Classroom or Independent Study*. Locate Press.

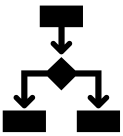
- May be purchased as a pdf (e-book) from Locate Press for \$34.99 USD. (<https://locatepress.com/dq32>)

**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'll 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	Topic	Readings	Lab Activity	Lab Due
Sept 11-15	Part I: Course overview, logistics, and expectations Part II: What is GIScience?	Ch. 1	Ensure lab access and can download / install QGIS on personal computer	
Sept 18-22	Digital Map Design	Ch. 4, pp. 168 - 175	Lab 1: Intro to QGIS and Map Design  *Lab office hours begin next Monday, Sept 25th, for getting help with Lab 1	
Sept 25-29	Data Models and Quality	Chs. 2 and 14	Lab 1 Continues	
October 2-6	Digital Data and Term Project	Ch. 7	Lab 2: Working with Spatial Data	Lab 1 Due
October 9-13	Coordinate Systems & Map Projections (Online – No Lecture)	Ch. 3	Data Accessibility (unmarked exercise)	Lab 2 Due
October 16-20	Working with Vector Data	Ch. 9	Lab 3: Working with Vector Data	
October 23-27	Vector Analysis	Ch. 9	Lab 4: Vector Analysis	Lab 3 Due
October 30-Nov 3	Fall Study Break			
November 6-10	Working with Raster Data	Ch. 10	Lab 5: Raster Data Analysis	Lab 4 Due
November 13-17	Raster Analysis	Ch. 11	Lab 5 Continues	Lab 5 Due (end of lab period)
November 20-24	Cartographic Modeling	Ch. 13	Term Project	
Nov 27- Dec 1	Web GIS	See OWL	Term Project	
December 4-8	Final Exam Review			Term Project Due (Dec. 5, 2023 at 11:55 pm)



## 7. Communication



- Students should check the OWL site every 24 – 48 hours.
- Email protocol:
  - Please put “GEOG 2220” in the **subject line** of every email you send.
  - Standard email response time is 24-48 hours.
  - It is encouraged to ask GIS lab questions in person during office hours which will allow us to provide you with hands-on help.
    - 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.
  - Similarly, any questions about your lab grade must be directed to your TA.

## 8. Evaluation

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

Assessment	Format	Weighting	Due Date
<b>5 Laboratory assignments</b>	Maps & written response questions	50%  (Each lab is weighted equally)	See course schedule
<b>Term Project</b>	5 – 7-page paper with at least 1 map and form of analysis	20%	Dec. 5, 2023, at 11:55 pm via OWL submission
<b>Final Exam</b>	Mixed format	30%	TBA, 2 hours

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.
- Rubrics will be used to evaluate assessments and will be posted with the instructions.
- After an assessment is returned, students are encouraged to wait 24 hours to digest feedback before contacting their TA.

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 **digitally** as one document in **PDF** format on **OWL**.
- For each lab you hand in, provide a **cover page** with your **name, lab section** and **date**.
- 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 uploading 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** must be submitted **digitally** as one document in **PDF** format on OWL by the date/time stated in the Course Schedule (item 6 above).

#### Information about late or missed evaluations:

- Late assessments without illness self-reports will be subject to a late penalty 10%/day.
- Late assessments with illness self-reports should be submitted within 24 hours of submission of the last illness self-report.
- As per university guidelines, any medical extensions must be directed through Academic Advising in your home faculty (please see below).

**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

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

Students may bring a non-programmable calculator to the exam. No other 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. Hewitt.

## 12. 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. Invest in a planner or application to keep track of your courses. Populate all your deadlines at the start of the term and schedule time at the start of each week to get organized and manage your time.
2. Make it a daily habit to log onto OWL to ensure you have seen everything posted to help you succeed in this class.
3. Follow weekly checklists created on OWL or create your own to help you stay on track.
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. Connect with others. Try forming a study group and try meeting on a weekly basis for study and peer support.
6. Do not be afraid to ask questions. If you are struggling with a topic, check the online discussion boards or contact your instructor(s) and or teaching assistant(s).
7. Reward yourself for successes. It seems easier to motivate ourselves knowing that there is something waiting for us at the end of the task.



## 13. 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.

## 14. 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.

## 15. 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.

## 16. 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.

## 17. Support Services

Western's Support Services  
Student Development Centre

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at [https://www.uwo.ca/health/student\\_support/survivor\\_support/get-help.html](https://www.uwo.ca/health/student_support/survivor_support/get-help.html).

To connect with a case manager or set up an appointment, please contact [support@uwo.ca](mailto:support@uwo.ca).

## 18. Important Dates

September 7: Classes resume



September 15: Last day to add a first term half course  
October 9: Thanksgiving Holiday – Department Office Closed  
October 30-November 5: Fall Reading Week (No classes; Department Office open)  
November 13: 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