

# GEOG 2220A – Geographic Information Science I

## Course Syllabus Fall 2020

*Syllabus subject to change*

### 1. Course Information

- Classroom Location:

Class Location and Time: This course is being delivered **asynchronously** in Fall 2020.

- **Lectures: New lectures** will be released **weekly each Thursday**, by **12:00 noon**. These will consist of pre-recorded lectures that you may access from the **Lessons** module on the OWL site for each week.
- **Labs:** New lab assignments will be posted under the **Lessons** module by **2:00 pm** on the **Thursday** of each week. Lab assignments will also be due at **2:00 pm** on **Thursdays** for **all** students.
  - Labs start in **Week 2**.
  - Lab support will be offered in 3 forms:
    - Scheduled group drop in sessions (with student peers and a lab teaching staff member)
    - Personalized time with a TA or member of the lab teaching staff (sign up in advance).
    - Drop-in Individualized time with a member of the teaching staff (first come, first served basis).

- **Contact Information:**

**Instructor:** Dr Agnieszka Leszczynski

**Office:** SSC 2425

**Email:** aleszczy@uwo.ca

**Office Hours:** Wednesdays 12:00 pm – 2:00 pm (or by appointment)

**Course email:** geog2220@uwo.ca

**Teaching Assistants:**

TBA

TA email: [geog2220@uwo.ca](mailto:geog2220@uwo.ca)

**Lab Support:**

Kathy Tang  
Karen Vankerkoerle

## 2. Calendar Description

- Course 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.

- Senate Regulations

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

We will be using two texts. Both are **required**.

- Bolstad, P. (2019) GIS Fundamentals: A First Text on Geographic Information Systems, 6<sup>th</sup> ed. XanEdu.
- Menke, K. (2019) Discover QGIS 3.x: A Workbook for Classroom or Independent Study. Locate Press.
  - May be purchased as a pdf from Locate Press for \$34.99 USD (<https://locatepress.com/dq3>)

## 4. Course Objectives

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.

## 5. Learning Outcomes

Students who complete Geography 2220 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 Schedule

Week	Lecture Topic	Readings	Lab Assigned	Lab Due
Week 1 Thurs Sept 10 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Course overview, logistics, and expectations</li> <li>• What is GIScience?</li> </ul>	<ul style="list-style-type: none"> <li>• Bolstad, Ch. 1, "Introduction to GIS", pp. 1-23</li> </ul>	<b>No lab; labs start in Week 2.</b>	
Week 2 Thurs Sept 17 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Digital Map Design</li> </ul>	<ul style="list-style-type: none"> <li>• Statistics NZ, "Design principles for maps" (<b>pdf via Course Readings in OWL</b> &gt; search for "Week 5" tag)</li> </ul>	<b>Lab 1:</b> Intro to QGIS & Digital Map Design	
Week 3 Thurs Sept 24 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Coordinate Systems and Projections</li> </ul>	<ul style="list-style-type: none"> <li>• Bolstad Ch. 3, "Geodesy, Datums, Map Projections &amp; Coordinate Systems", pp. 87-107 &amp; 116-133</li> </ul>	<b>Lab 2:</b> Coordinate Systems & Map Projections	<b>Lab 1 due</b>
Week 4	<ul style="list-style-type: none"> <li>• All About Spatial Data</li> </ul>	<ul style="list-style-type: none"> <li>• Schuurman Ch. 3, "The Devil Is</li> </ul>	<b>Lab 3:</b>	<b>Lab 2 due</b>

Week	Lecture Topic	Readings	Lab Assigned	Lab Due
Thurs Oct 1 <sup>st</sup>		In The Data” (pdf via Course Readings in OWL > search for “Week 4” tag)	Working with Spatial Data	
Week 5 Thurs Oct 8 <sup>th</sup>	<ul style="list-style-type: none"> <li>Data Models</li> </ul>	<ul style="list-style-type: none"> <li>Bolstad Ch. 2, “Data Models”, pp. 27-59</li> </ul>	<b>No lab</b>	<b>Lab 3 due</b>
Week 6 Thurs Oct 15 <sup>th</sup>	<ul style="list-style-type: none"> <li>Vector Analysis I</li> </ul>	<ul style="list-style-type: none"> <li>Bolstad Ch. 9, “Basic Spatial Analysis”, pp. 373-403</li> </ul>	<b>Lab 4:</b> Working with Vector Data	
Week 7 Thurs Oct 22 <sup>nd</sup>	<ul style="list-style-type: none"> <li>Vector Analysis II</li> </ul>	<ul style="list-style-type: none"> <li>Bolstad Ch. 9, “Basic Spatial Analysis”, pp. 404-419</li> </ul>	<b>Lab 5:</b> Vector Analysis	<b>Lab 4 due</b>
Week 8 Thurs Oct 29 <sup>th</sup>	<ul style="list-style-type: none"> <li>Raster Analysis I</li> </ul>	<ul style="list-style-type: none"> <li>Bolstad Ch. 10, “Topics in Raster Analysis”, pp. 445-475</li> </ul>	<b>Lab 6:</b> Working with Raster Data	<b>Lab 5 due</b>
<b>Week of November 2<sup>nd</sup></b>	<b>FALL READING WEEK</b>			
Week 9 Thurs Nov 12 <sup>th</sup>	<ul style="list-style-type: none"> <li>Raster Analysis II</li> </ul>	<ul style="list-style-type: none"> <li>Bolstad Ch. 11, “Terrain Analysis”</li> </ul>	<b>Lab 7:</b> Raster Analysis	<b>Lab 6 due</b>
Week 10 Thurs Nov 19 <sup>th</sup>	<ul style="list-style-type: none"> <li>GIScience Ethics</li> </ul>	<ul style="list-style-type: none"> <li>Bolstad Ch. 10, “Topics in Raster Analysis”</li> </ul>	Time to work on <b>project</b>	<b>Lab 7 due</b>

Week	Lecture Topic	Readings	Lab Assigned	Lab Due
Week 11 Thurs Nov 26 <sup>th</sup>	<ul style="list-style-type: none"> <li>Digital Location, Surveillance, &amp; Privacy</li> </ul>	<ul style="list-style-type: none"> <li>Bolstad Ch. 11, "Terrain Analysis"</li> </ul>	Time to work on <b>project</b>	
Week 12 Thurs Dec 3 <sup>rd</sup>	<ul style="list-style-type: none"> <li>Final exam review</li> </ul>		Time to work on <b>project</b>	Projects due by <b>4:00 pm on Friday, December 4<sup>th</sup></b>

## 7. Evaluation

Evaluation Components	Percentage of Course Grade	Assignment Schedule	Details
Laboratory assignments (7 assignments)	50%  (each lab is weighted equally)	See course schedule	Labs are due at <b>2:00 pm on Thursdays</b> (at the start of the <b>next lab session; 10 minute grace period</b> ). For the late submission policy, penalties, and procedures, please refer to item <b>8</b> below.
Term Project	20%	<b>Due December 4<sup>th</sup></b> (by 4:00 pm)	Details TBA.
Final exam	30%	Date TBA	Final Exam Period, 2hrs

Students are responsible for material covered in the lectures as well as the assigned chapters/sections in the text. **To pass the course**, students **must pass the laboratory component of the course** (achieve a minimum overall grade of 50% over the laboratory assignments in aggregate).

**All laboratory assignments should be completed individually.** Any assignments turned in for assessment must reflect each student's own, independently produced work. Two or more students submitting identical or near identical answers or map outputs for an assignment or parts thereof will each receive a grade of 0 on the assignment in question. Per University and Department of Geography regulations and procedures, any incidences of plagiarism will be reported to the Chair of the Department and to the Dean's office. This may be reflected on your transcripts.

## 8. Assignment submission policy, late penalties, and self-reported absences

Except where indicated, all lab assignments are due at the start of the next lab session, or as otherwise specified, on the course schedule above (see item 6) . There is a **10 minute grace period**, which means that all assignments submitted after 2:10 pm on the due date will be considered **late**.

All assignments must be submitted **digitally** via **OWL assignments**. **All responses must be typed** and uploaded in the format specified (e.g., pdf, jpf). **All maps must be generated in colour**. Student's **names and student numbers** must be on each assignments component.

Save for late submissions that qualify for academic accommodations (see below), the **penalty for late assignments is 15% for the first 24 hrs, and 10% for the second 24 hours**, for a maximum of 48 hours (excluding weekends and holidays). This means that lab assignments must be submitted via OWL no later than 2:00 pm on the subsequent/following Monday. Projects must be submitted no later than 4:00 pm on Tuesday, December 8<sup>th</sup>.

For self-reported absences, **if a self-reported absence applies to a lab assignment submission**, follow the late policy submission procedure. In the case of a self-reported absences, the 48 hour policy still applies: no assignments will be submitted more than 48 hours past the original submission deadline; however, if using a self-reported absence, **no late penalty will apply during the SRA period**. Alternatively stated, **use of a self-reported absence does not extend the late submission window**.

## 9. Academic Accommodations

The University recognizes that a student's ability to meet their academic responsibilities may, on occasion, be impaired by extenuating circumstances, including short term illness or injury.

Reasonable academic consideration is a cooperative process between the University, the student and academic staff. All participants in the process must act in good faith and fulfil their respective obligations set out in this Policy and the associated Procedures if it is to succeed.

For Western's [Policy on Accommodation for Illness](#) and a downloadable SMC, please refer to the [Academic Handbook](#).

Students seeking academic accommodation on medical grounds for any missed tests, exams, participation components and/or assignments worth 10% or more of their final grade must apply to the Academic Counselling office of their home Faculty and provide documentation. Academic accommodation cannot be granted by the instructor or department.

**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.**

## 10. Make-up Examinations

Make-ups for the final exam will be granted with approved documentation **only**. All documentation for missed exams must be provided the Academic Counselling Office and Instructor 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 examination.

## **11. Lecture Slides & Recordings**

Lecture slides and video and audio recordings 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.

## **12. 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.

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.

## **13. Western's Commitment to Accessibility**

The Department of Geography 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 differential abilities.

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.

## **14. 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.

## **15. Support Services**

Student Support Services

Student Development Services

## **16. Important Dates Fall 2021**

September 9: Classes resume

September 17: Last day to add a first term half course

October 12: Thanksgiving Holiday – Department Office Closed

November 2 to November 8: 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 9: Classes end

December 10: Study day

December 11-22: Examination Period