Instructor
Adam Bonnycastle, MSc
Geomatics Support Specialist, Dept. of Geography, Environment and Geomatics
Room 231A, H.L. Hutt Building (HUJT)
abonnyca@uoguelph.ca
519-824-4120 ext. 53097 (If I am unable to answer, please email me rather than leave a voice message.)
Adam’s Office hours: Thursdays, 1:00pm – 3:00pm

Graduate Teaching Assistants
• Laura Lisso, llisso@uoguelph.ca

Laura’s Office hours: Lab sessions. You may drop in to sessions that are not your own, as long as there is space.

Prerequisite: 10.00 credits, including GEOG*2480

Public Health & COVID-19
(Adapted from Drs. Jaclyn Cockburn and Eric Nost)

It is our collective responsibility to ensure our classroom remains a safe and healthy environment for all of us. Strict compliance with all public health regulations set forth by the Government of Ontario, Wellington-Dufferin-Guelph Public Health, and the University of Guelph is required. Please be sure you are familiar with all of the University of Guelph COVID-19 Practices.

• As of the start of the semester, University policy is to strongly encourage community members to wear proper masks when in high-density spaces like classes, labs, elevators, and meeting rooms. I expect all members of our class to be respectful of each other’s personal decision on this matter.

• If you, or someone in your household, is feeling ill, please do not come to campus. I will do the same if necessary. Please follow the most up to date University Requirements for individuals with symptoms or a positive test. In the event of my own self-isolation or illness, there may be significant changes to the course based on what I am able to do under these conditions.

• If you require a short-term accommodation due to COVID-19, please contact me as soon as possible. For longer or more complex accommodation, please contact Accessibility Services as soon as possible.

• We strongly encourage you to familiarize yourself with Accessibility Services, your Academic Advisor office (e.g., BACO, BSc Advising etc.) and Student Wellness (& Health Services) should you require their assistance during the semester.

• If at any point in the semester it becomes necessary to move this course completely online, I will communicate all changes via CourseLink and/or your UoG email. This course is not designed to be fully remote; there may be bumps and unforeseen challenges if this occurs.
Expectations for Inclusivity & Online Behaviour
(Adapted from Dr. Jaclyn Cockburn)

Different perspectives and lived experiences shape whom we are and make our communities stronger. I want everyone in our class to feel safe, feel that they belong and that their ideas, perspectives, and lived experiences are important. It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students’ learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups.

We will not tolerate inappropriate online behaviour, examples of which include:

- Posting inflammatory messages about your instructor, TA and/or fellow students
- Using obscene or offensive language online
- Copying or presenting someone else’s work as your own
- Adapting information from the Internet without using proper citations or references
- Buying or selling term papers or assignments
- Posting or selling course materials to course notes websites
- Having someone else complete your quiz/exam
- Completing a quiz/exam for/with another student when collaboration is not permitted
- Stating false claims about lost quiz answers or other assignment submissions
- Threatening or harassing a student, TA and/or instructor online
- Discriminating against fellow students, instructors and/or TAs
- Using the course website to promote profit-driven products or services
- Recording lectures without the permission of the instructor
- Attempting to compromise the security or functionality of the learning management system
- Sharing your username and password
- Using the course website to promote profit-driven products or services

Course Description

Overview
This course is one of four 3rd year courses in the Geomatics Stream of Courses Offered by Geography, the others being GEOG*3420 Remote Sensing of the Environment, GEOG*3430 Geomatics for Environmental Analysis, and GEOG*3440 GIS for Decision-Making. The focus of this course is on the analysis of geographical data using GIS and related Geomatics technologies. GEOG*3480 provides the analytical background necessary for the thematic capstone course, GEOG*4480 Applied Geomatics.

Course Calendar Description
This course focuses on the use of raster and vector-based geographic information systems to analyze spatial data. Topics include map digitizing, data query and overlay, spatial interpolation, multi-criteria evaluation, least cost pathway determination and digital elevation models. This course requires some familiarity with numerical methods and computer operations.
Learning Outcomes
By the end of the course, you should be able to:

• Understand the foundational theories of GIS including the unique character of spatial data.
• Analyze geospatial data using GIS software.
• Identify key issues related to spatial data error.
• Understand spatial analysis techniques and practices.
• Practice communicating concepts through formal written and visual forms.

Course Organization

• Three in-person class meetings per week, Mondays, Wednesdays & Fridays, 2:30pm – 3:20pm.
  o Room 121, Mackinnon Building (MCKN).
• One in-person two-hour lab session per week.
  o Room 231, H.L. Hutt Building (HUTT)
    ▪ Section 1, Friday 12:30pm – 2:20pm
    ▪ Section 2, Tuesday, 12:30pm – 2:20pm
    ▪ Section 3, Tuesday, 7:00pm – 8:50pm

Rationale for in-person learning
After consulting with colleagues and listening to student feedback these past few semesters, I feel that technical
computer-based courses, such as those for GIS/geomatics, benefit from in-person interaction. While online learning
is certainly satisfactory, students have reported that they feel more engaged with the content when they can
collaborate directly with other students, TAs, and their instructor. For example, live demonstrations in class,
trouble-shooting inevitable hurdles on-the-fly during lab sessions, etc.

References
There is no required text for this class. The main recommended text is:

The text is available via the UoG bookstore ($92.75, new; $28.25, 180-day eBook), as well as 4-hour reserve in the
McLaughlin Library.

Evaluation

Grade Distribution
• Laboratory Assignments, 40% (4 * 10% each)
• GPS data assignment, 3%
• Midterm, 27%: Online, 10/21/2022, Exact timing TBA (1 h to complete exam, timing will straddle class time)
• Final Exam, 30%: Online, 12/14/2022, 8:30am – 10:30am

Exams
Lecture material will be evaluated through a midterm and a final exam. Both the midterm and final exams will be
scheduled, open-book, online exams, taken through the Quizzes tool on CourseLink. Some of the concepts covered
in labs may be included on both the mid-term and final exams.
Laboratory assignments
The lab material constitutes an integral part of this course, since this is where students receive hands on work with spatial datasets and must apply the techniques they have learned. Lab assignments are designed to familiarize you with basic GIS operations and to teach you problem solving skills. By completing these assignments, you will gain practical experience in using GIS software to create and edit datasets, manipulate and analyze data, and generate maps that communicate spatial information effectively.

- Submit all labs to the appropriate CourseLink Dropbox by the due date and time.
- We will only accept late assignments without penalty with prior approval. Otherwise, there may be a late penalty of 10% of the total assignment’s value per day (including weekend days).
- Students must provide and use their own method of backing up files (University OneDrive, USB memory stick, etc.). **Lost files are NOT a valid reason for handing in a late assignment.**
- Students may attend lab sessions other than their own with the permission of the TA for that lab session. Students officially registered for a lab session always have first priority.

The first lab session will take place during the week of September 19th (“Week 2”). All lab activities and assignments will be carried out using ArcGIS Pro. All computers in the HUTT GIS lab have the necessary software installed on them. Students who wish to use their own computers to complete lab work are responsible for installing and maintaining their own GIS software installations. **If a student does not attend a session it is their responsibility to contact other students regarding missed material.** Although no participation marks will be given, lab attendance is mandatory and attendance will be recorded by the GTA each week. **The GTA is not obliged to respond to e-mail questions of students who fail to regularly attend lab sessions.**

Lab sessions are GTA office hours; they are limited in their ability to respond to emails outside of these sessions.

Lab assignment schedule

- **Lab 01:** Introduction to Geodatabases and Topology
  - Due **Wednesday, Oct. 12th, 9am**, CourseLink Dropbox
- **Lab 02:** Multi-criteria Evaluation (MCE) and Least-cost Pathway (LCP) Analysis
  - Due **Monday, Oct. 31st, 9am**, CourseLink Dropbox
- **Lab 03:** Introduction to Spatial Statistics
  - Due **Monday Nov. 14th, 9am**, CourseLink Dropbox
- **Lab 04:** Introduction to Python for ArcGIS
  - Due **Friday, Dec. 2nd, 11:59pm**, CourseLink Dropbox

GPS data assignment
I will provide assignment details by the end of Week #2

How to do well in this course

- Take care of yourself, and communicate with your instructor and TA about challenges that you are facing.
- Attend lectures, take notes, and engage with exercises.
- Do the readings.
- Attend your lab sessions and complete the lab assignments. Lab sessions are generally for working on your assignments. While you will also need to work on these assignments outside of class time, these sessions are when you have access to your TAs to ask questions and receive help if you are stuck on something.
- Work through technical problems with the help of your classmates, TA, online forums, and myself.
- Ask questions if you are feeling stuck!! 😊
**Tentative Schedule**

Attendance at lectures and lab sessions is mandatory. *If a student misses a class/lab it is their responsibility to contact another student to find out what material they missed. The GTA is not obliged to respond to e-mail questions of students who fail to regularly attend lab sessions.*

<table>
<thead>
<tr>
<th>Week Number</th>
<th>Lecture Topics (subject to change)</th>
<th>Readings</th>
<th>Lab notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Sept 12th → Unit 1 – Intro to GIS and Spatial Analysis</td>
<td>Burrough et al., pp 1-15</td>
<td>Lab 01 Posted. No lab sessions.</td>
</tr>
<tr>
<td>2.</td>
<td>Sept 19th → Unit 2 – Spatial Data Quality</td>
<td>Burrough et al., pp 80, 149-150, 86-87, 261-262</td>
<td>Lab sessions begin! Complete Part 1 Esri courses.</td>
</tr>
<tr>
<td>5.</td>
<td>Oct 12th → (W-F only) Unit 3, continued</td>
<td></td>
<td>Lab 01 due Wednesday Oct. 12th 9am, Lab 02 posted. Work on Lab 2 Part 1 courses.</td>
</tr>
<tr>
<td>7.</td>
<td>Oct 24th → Unit 4, continued; Unit 5 – Spatial Statistics</td>
<td>TBA</td>
<td>Complete Part 2 &amp; Part 3</td>
</tr>
<tr>
<td>8.</td>
<td>Oct 31st → Unit 5, continued</td>
<td></td>
<td>Lab 02 due Monday Oct. 31st 9am, Lab 03 posted. Complete Lab 3 Part 1 courses.</td>
</tr>
<tr>
<td>9.</td>
<td>Nov 7th → Unit 6 – Spatial Interpolation</td>
<td>Burrough et al, Chs 8 &amp; 9</td>
<td>Complete Part 2. Lab 04 posted for info (UoG reg.).</td>
</tr>
<tr>
<td>10.</td>
<td>Nov 14th → Unit 7 - Terrain</td>
<td>Burrough et al., 219-228</td>
<td>Lab 03 due Monday Nov. 14th 9am. Complete Lab 4 Part 1 course.</td>
</tr>
<tr>
<td>11.</td>
<td>Nov 21st → Unit 7, continued</td>
<td></td>
<td>Complete Part 2.</td>
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University of Guelph Policy Statements

E-mail Communication
As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

When You Cannot Meet a Course Requirement
When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. See the Undergraduate Calendar for information on regulations and procedures for Academic Consideration.

Drop Date
All course drops are to be completed by the dates specified in the Undergraduate Calendar Chapter III – Schedule of Dates. Courses that are one semester long must be dropped by the end of the last day of classes. The regulations and procedures for Dropping Courses are available in the Undergraduate Calendar.

Copies of out-of-class assignments
Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Accessibility
The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required, however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to make a booking at least 14 days in advance, and no later than November 1 (fall), March 1 (winter) or July 1 (summer). Similarly, new or changed accommodations for online quizzes, tests and exams must be approved at least a week ahead of time.

More information is available at the Accessibility Services website.

Academic Misconduct
The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community — faculty, staff, and students — to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the
academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is outlined in the Undergraduate Calendar.

An example of academic misconduct that might occur in this course is to copy an answer, on an exam or lab exercise, from another student. This includes graphic elements of map design. Each student must create their own digital files for computer-based exercises.

Recording of Materials
Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Resources
The Academic Calendars are the source of information about the University of Guelph’s procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.

Disclaimer
Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via Courselink and/or class email.

This includes on-campus scheduling during the semester, mid-terms and final examination schedules. All University-wide decisions will be posted on the COVID-19 Information website and circulated by email.

Illness
Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

COVID-19 Safety Protocols
For information on current safety protocols, follow these links:

- Return to Campuses: How U of G is preparing for your safe return
- Return to Campuses: Classroom Spaces

Please note, that these guidelines may be updated as required in response to evolving University, Public Health or government directives.