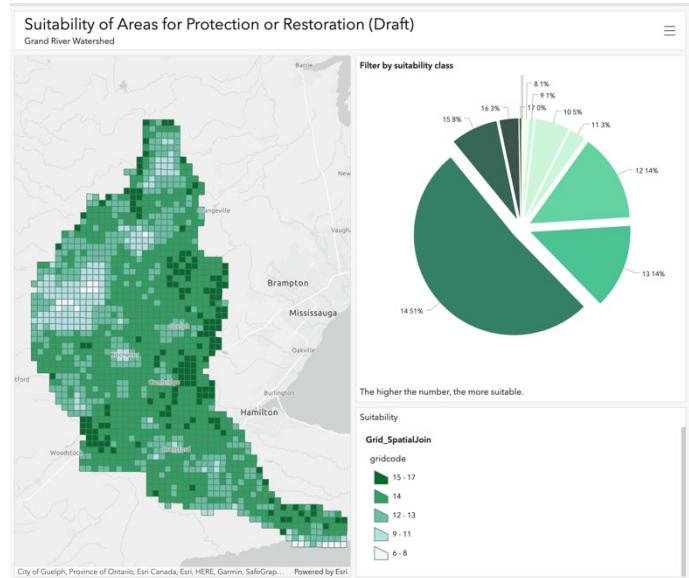


# GEOG\*3440 GIS for Decision-Making

Fall 2022

Department of Geography, Environment and Geomatics  
University of Guelph

MWF 10:30-11:20a  
Graham 2310



Lab 4: A map-based “data dashboard” for choosing where to invest in habitat projection or restoration.

## Instructor

Dr. Eric Nost | enost@uoguelph.ca

Office: 344 HUTT

Office hours: M 9:30-10:30a; T 3-4p

## Teaching Assistant

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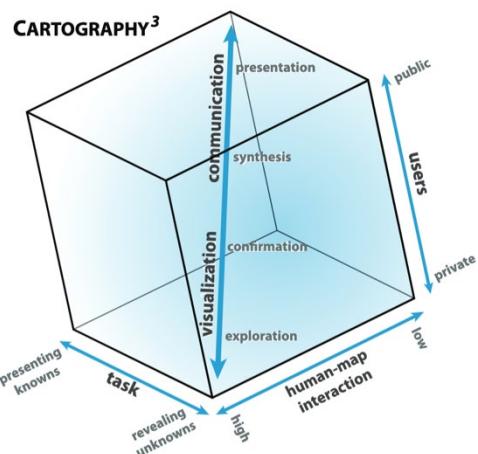
## Learning Outcomes

By the end of this course, students will have learned how to:

1. Identify key concepts behind the use of geomatics in decision-making
2. Apply these concepts to desktop-based and online interactive maps
3. Evaluate real-world use cases where geomatics supports decision-making
4. Critically assess the roles maps can play in communicating science, persuading decision-makers, and provoking public dialogue
5. Reflect on the ethical dimensions of mapping as a professional practice

## Description

This course trains students to use geomatics techniques as part of a decision-making process, and to critically reflect on the relationship between geospatial analysis and policy decisions in government, community, and corporate settings. Topics include: public and participatory GIS (PPGIS); webmapping; multi-criteria analysis; scenario mapping. Students will further develop their skills in industry-standard mapping software, apply these skills in practice to issues such as climate change, nature conservation, and COVID-19, and reflect on subjects such as uncertainty that challenge spatial data-driven decision-making.



The course is organized around three elements of MacEachren's "cartography cube," which provides a framework for understanding effective map-based communication. Each section involves lectures on the theory of GIS-based decision-making and hands-on lab projects:

1. **Communication:** mapping as a strategy to impart expert knowledge about a given topic. For instance, climate change communication maps showing where sea level rise will occur; web-based versions of these maps may even allow users to assess sea level rise in relation to specific places of interest like their homes.
2. **Engagement:** mapping as a strategy to engage diverse publics in their knowledge about a given topic and/or their opinions about decisions. For instance, "geoweb" maps can help planners enlist local residents in climate change adaptation efforts, asking what places they would like to see protected.
3. **Exploration:** mapping as a strategy to explore different scenarios and optimize outcomes. For instance, conservation organizations have developed maps to help decision-makers prioritize adaptation projects in one location against another, based on economic and/or environmental criteria.

Throughout, the course prompts students to reflect on the ethical dimensions of mapping as a professional practice – who gets to map, what, and for whom?

## Organization

- Mondays – lectures on theories and concepts
- Wednesdays – discussions of case studies and readings
- Fridays – live demos, guest presentations, and other exercises
- Once a week – lab sections to work through assignments

## Materials

There is no required textbook for this course. However, there are assigned readings, which will be made available through Courselink.

## Weekly Schedule

It is strongly recommended that you come to lecture and lab having already completed the week's assigned reading(s).



Week of...	#	Topic	Reading	Lab
Sep 12	1	How maps work	MacEachren	Getting set-up
Sep 19	2	Map-based communication	Fish	Story Map tutorial
Sep 26	3	Webmapping (presentation)	Neset et al.	Create Story Map
Oct 3	4	Public and participatory GIS	Denwood et al	Story Map debrief
Oct 10	5	User-centered design	Robinson et al.	PPGIS tutorial
Oct 17	6	Webmapping (engagement) part 1	Fast and Rinner	Census map
Oct 24	7	Webmapping (engagement) part 2		PPGIS proposal
Oct 31	8	Multi-criteria and network analysis	Greene et al.	MCA tutorial
Nov 7	9	Uncertainty, risk and scenarios	Kübler et al. and Kostelnick et al.	MCA map
Nov 14	10	Webmapping (exploration)	Nost et al. and Häägg et al.	MCA decision
Nov 21	11	Data feminism	D'Ignazio and Klein	Create Dashboard
Nov 28	12	Course review		Dashboard debrief
TBD		Take-home lab		

## Evaluation

Evaluation in this course is based on a set of 5 lab assignments, each of which is equally weighted in terms of your final grade (20%). Each is structured as follows:

- Tutorial (3%)
- Map (10%)
- Reflections (7%)

## Assignments

A note about due dates: You will see that there is something due pretty much *every week* in this course. In a way, this is meant to simulate workplace conditions, where there are frequent, regular deadlines. However, just as in many workplaces, there are “harder” and “softer” deadlines. For each lab, the hard deadline for turning in all components is the end of the third week of the lab (except lab 4). In other words, the *hard* deadlines are:

- Lab 1 – end of week 4
- Lab 2 – end of week 7
- Lab 3 – end of week 10
- Lab 4 – end of week 12

The “softer” deadlines in in-between weeks are meant to keep you on track with the course. The sooner you turn in your work, the sooner we will be able to mark it. Additionally, turning in your



maps on the soft deadline supports the rest of the class on assignments where I ask you to examine your classmates' maps.

In circumstances of illness or emergency, please use the extension requests form on Counselink to let me know that you'll need to turn in the work a little later than the hard deadline. Please do not use the extension requests form to ask for more time on a soft deadline.

The lab assignments constitute an integral part of this course and you will not do as well if you do not attend your weekly lab session.

Assignments submitted after hard deadlines will only be accepted without penalty with prior approval of the instructor. Otherwise, there will be a penalty of 10% of the assignment's value per day (including weekend days). Lost files are not a valid reason for handing in a late assignment.

### How to do well in this course

- Come to the lectures and lab and be present
- Do the week's readings in advance
- Work through technical problems, with the help of fellow students, your TA, your prof, and online forums
- Ask questions when you're feeling stuck!



## A brief Q&A

Q: I have to miss lecture or a lab assignment for a family/personal/medical emergency. What should I do?

A: Lectures will be recorded and made available through Counselink. For lab assignments, please get in touch as soon as possible using the extension request form on Counselink..

Q: I'm not happy about my lab grade. Will you change it?

A: Please wait at least 24 hours / over the weekend. Sit on it and think about what exactly the problem is. Then, email your TA with an explanation of the issue and an argument for why we should regrade your assignment. For regrades, we reserve the right to either increase OR decrease your grade depending on what we find.

Q: I'm confused about the material—what should I do?

A: First off, don't feel embarrassed—few scholars, whether undergraduates or tenured professors - understand everything completely the first time! Please bring your questions to class and/or lab! If you are confused, it's likely that your classmates are, too. If you bring me questions, it helps me evaluate how best to help you learn the material. If you are still confused, please come to my office hours. I am glad to help!



## What you can expect from me

- To help you not only understand but get excited about the material, learning as much as possible about mapping! We're all coming from different perspectives and starting points, meaning that it is everyone's responsibility, but especially mine, to work to provide a respectful and engaging learning environment. I'm here to work with you from where you are and build up your understanding of the course content.
- To provide prompt feedback on assignments.
- To give you a sense of the flow of the semester – when the assignment load will be heavier, so that you can prepare appropriately.
- To assist in developing your critical analysis and communication skills, through our assignments. These are skills that will be useful to you in both your chosen profession and as a citizen.
- To advise you on future coursework, jobs, grad school, and/or volunteering opportunities.

## What I expect of you

- To treat each other with respect. Our virtual classroom is a safe space for all students, regardless of sex, gender, race, ethnicity, religion, age, sexual orientation, nationality, ability or disability. Every person is welcome here.
- To communicate with me about what you expect from the course, what you need, and your challenges.
- To put your best possible effort into this class.



## 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

Courses that are one semester long must be dropped by the end of the last day of classes; two-semester courses must be dropped by the last day of classes in the second semester. 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 7 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: [www.uoguelph.ca/sas](http://www.uoguelph.ca/sas)

### 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.



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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 detailed in the Undergraduate Calendar.](#)

### 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.

### 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).

For information on current safety protocols, follow these links: <https://news.uoguelph.ca/return-to-campuses/how-u-of-g-is-preparing-for-your-safe-return/> <https://news.uoguelph.ca/return-to-campuses/spaces/#ClassroomSpaces>

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

### 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 website (<https://news.uoguelph.ca/2019-novel-coronavirus-information/>) and circulated by email.