

Geography 181: Principles of GIScience

Contact Information

Instructor: Peter Johnson
Assistant Professor, Department of Geography and Environmental Management,
Office: EV1-236,
Office Hours: Wednesdays 1:00 pm to 2:00pm.
If you need to schedule an appointment outside of these drop-in hours, please contact me.
Phone: ext. 33078,
E-mail: peter.johnson@uwaterloo.ca
From Monday to Friday, I make every effort to answer emails within 24hrs. Email sent on the weekend will normally be answered on the following Monday. Please note that I only discuss grading issues during office hours.

Teaching Assistants

Course Description

This course focuses on the compilation and cartographic display of spatially referenced data. Topics covered include geographic coordinate systems, map projections, mapping quantitative data, terrain representation, compiling data from a variety of sources, and the production of effective maps based on established principles of cartographic design.

Course Objectives

By the end of the course, students should be able to:

Compare and contrast different classes of maps.

Identify and distinguish different types of geographic co-ordinate systems and map projections

Identify and apply the computer-based techniques for the production of quantitative maps

Recognize and apply the principals of map design to the creation and evaluation of maps.

Course Presentation

Lecture:

Monday 8:30am to 10:20am in Arts Lecture 113.

Lecture Materials on PowerPoint:

The PowerPoint presentations used in the lecture will be provided on LEARN.

Please Note: The PowerPoint files are provided to simplify the note taking process and to ensure that diagrams are copied correctly. **I will add many details verbally during class, including explaining diagrams, images, and concepts.** You are responsible for all materials presented in lecture - whether that is verbally, from the text, or included on the PowerPoint slides.

Required Textbook:

Making Maps (3rd edition): A Visual Guide to Map Design for GIS. Krygier & Wood. Guilford Press, 2016.

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Lab section and time:

LAB 101 8:30am – 10:20am Tuesday in EV1 240

LAB 102 8:30am – 10:20am Friday in EV1 240

LAB 103 12:30pm – 2:20pm Monday in EV1 240

LAB 104 2:30pm – 4:20pm Thursday in EV1 240

LAB 105 12:30pm – 2:20pm Friday in EV1 240

LAB 106 12:30pm – 2:20pm Tuesday in EV1 240

LAB 107 2:30pm – 4:20pm Tuesday in EV1 240

LAB 108 6:30pm – 8:20pm Tuesday in EV1 240

The Geddes Lab

Most lab classes will be held in the John Geddes GIS Lab (EV2 1002A). Access to the lab is gained by entering a code in the keypad combination lock on the door of the lab. Do not give the combination to anyone else. We are trying to limit access to this lab to those who need to use it for course work and for those that need to use the specialized software only available on these computers. This will provide you with greater access to the computers in this lab when you need them to complete assignments. Similarly, if someone knocks on the door when you are in the lab, do not open the door or prop the door open. Everyone who needs to get into the Lab can obtain the combination from the Mapping, Analysis and Design (MAD) Helpdesk in EV2 163A or from their course instructor.

Please make sure you carefully backup all digital files that you use or create in this class. Do not leave any of your files on the local lab computer.

Please note: No food or drink is to be brought into this lab.

Evaluation

Final grades for the course will be assigned as follows:

7 Lab Assignments	50%
Test 1 (October 17th in class)	25%
Test 2 (December 5th in class)	25%
	100%

Deadlines

Lab assignments are due at the beginning of your lab session on the day specified at the top of the lab. This will normally be either one week after, or two weeks after they have been handed out (Lab 1 is completed in the first session). Lab assignments must be handed in on or before the due date. **Late labs will not be accepted.** If for some reason you are unable to hand in your lab at the due date, contact your lab T.A. as soon as possible.

Note for Students with Disabilities: The AccessAbility office, located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with AccessAbility at the beginning of each academic term.

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Lecture and Lab Schedule*

Week #, Lecture Date	Lecture Topic(s)	Lab Assignment
1 - Sept 12	L01 - Course Overview/Administration/Tips L02 - The Definition and Scope of Cartography	No labs
2 - Sept 19	L03 - The Nature of Maps and Map-Making L04 - Cartographic Fundamentals	Lab 1: Mental Maps (4%) due at end of lab time.
3 - Sept 26	L05 - Principles of Map Projections	Lab 2: Map Library Resources (5%)
4 - Oct 3	L06 - Map Co-ordinates and Scale L07 - Mapping Quantitative Data	Lab 3: ArcGIS Tutorial and Map Projections (5%). Lab 2 due.
5 - Oct 10	Thanksgiving – no class or labs scheduled	Lab 4: Map Co-ordinates and Map Scale (8%). Lab 3 due.
17 - Oct.	Test 1	
24 - Oct.	L08 - Choropleth Maps L09 - Point Symbol Maps	Lab 5: Quantitative Mapping (10%). Lab 4 due.
31 – Oct.	L10 - Terrain Representation L11 - Error, Accuracy	
7 - Nov.	L12 - Base Maps L13 - Web Mapping	Lab 6: Web Mapping (8%). Lab 5 due.
14 - Nov.	L15 - Principles of Map Design L16 - Map Design / Map Elements	Lab 7: Map Design (10%). Lab 6 due.
21 - Nov.	L17 - Critical Cartography/ How to Lie with Maps	
28 – Nov.	L18 - Next Steps with GIS, Review Course Evaluation	Lab 7 due.
5- Dec.	Test 2	

*The instructor reserves the right to make changes to the schedule as necessary.

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Textbook

The following chapters will be covered in the course text. This list of readings will be supplemented by materials discussed in class and provided on LEARN. **Material from the textbook will be covered in class AND on the tests.**

EXTREMELY IMPORTANT INFORMATIONPLEASE READ THIS***

Accommodations and Access: I want this class to be open and accessible to everyone, and to be a safe, welcoming, and collegial environment. So, please feel free to sit where you like, eat snacks, use a laptop, and come and go from the classroom when you need to, so long as none of these activities disturb the learning experience of other students. I recognize that classroom learning can be challenging, and I will try and reduce barriers to access in general and also work to meet any specific accommodation needs you may have. You can approach me directly, after class, in my office hours, or via email to discuss any accommodation. Some specific accommodations, such as note taking, extended test writing times, learning technology support, and other can be arranged at the AccessAbility office (located in Needles Hall, Room 1401, (<https://uwaterloo.ca/disability-services/>)). Please register with this office at the beginning of each academic term.

Mental Health: Pretty much every student has or will face some type of mental health challenge in their time at university. There are many types of physical and emotional challenges that can make it difficult to do your best work and enjoy your studies. **You are not alone, and help is available from many different places.** If you need help, go immediately to the place you feel most comfortable; your residence don, your friends, your professors (including me!), or to Counselling Services <http://www.uwaterloo.ca/counselling-services>, located on the 2nd floor of the new Needles Hall expansion. Counselling Services is an inclusive, non-judgmental, and confidential space for anyone to seek support. They offer confidential counselling for a variety of areas including anxiety, stress management, depression, grief, substance use, sexuality, relationship issues, and much more. Above all, seek help – these are challenges that you do not need to face alone.

Academic Integrity Policies

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. [Check www.uwaterloo.ca/academicintegrity/.]

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4, www.adm.uwaterloo.ca/infosec/Policies/policy70.htm. When in doubt please be certain to contact the department's administrative assistant who will provide further assistance.

Discipline: A student is expected to know what constitutes academic integrity [check www.uwaterloo.ca/academicintegrity/] to avoid committing an academic offence, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course instructor, academic advisor, or the undergraduate Associate Dean. For information on categories of offences and types of penalties, students should refer to Policy 71, Student Discipline, www.adm.uwaterloo.ca/infosec/Policies/policy71.htm. For typical penalties check Guidelines for the Assessment of Penalties, www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm.

Within ENV, those committing academic offences (e.g. cheating, plagiarism) will be placed on disciplinary probation and will be subject to penalties which may include a grade of 0 on affected course elements, 0 on the course, suspension, and expulsion.

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Appeals: A decision made or penalty imposed under Policy 70 (Student Petitions and Grievances) (other than a petition) or Policy 71 (Student Discipline) may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72 (Student Appeals) www.adm.uwaterloo.ca/infosec/Policies/policy72.htm.

What does a grade mean? Students come to the University of Waterloo from a variety of backgrounds, where numeric grades may not be used, or have very different meanings. The following table gives a general definition for what type of work constitutes a particular grade. Please note that very good quality work typically merits a grade of between 70-79, with grades of over 80 being reserved for truly exceptional work.

Assigned Grades	Description
80-100	Grades in this category signal a sign of excellence and are not something that should be expected for work that simply meets the requirements of the assignment. In this category, a student has demonstrated a full understanding of the subject matter, has capacity to analyze, has demonstrated critical thinking, shows evidence of creative thinking, familiarity with literature and previous work in area, highly developed communication and presentation skills. The work is of outstanding quality according to the criteria established for evaluation.
70-79	Student has shown good comprehension of subject matter, evidence of critical and creative thought, familiarity with literature and previous work in subject area, competence in communication and presentation skills, but none of the above to the degree found in A category. The work is of very good quality according to evaluation criteria
60-69	Student has demonstrated some understanding of subject matter, can assimilate and communicate basic aspects of the subject matter. The work is of satisfactory or adequate quality according to evaluation criteria
50-59	Student has demonstrated minimal understanding of the subject matter, poorly developed communication skills, inability to apply subject matter understanding in other contexts, little evidence of critical or creative thinking. The work is of unsatisfactory but passable quality according to evaluation criteria.
0-49	Inadequate understanding of subject matter, failed to complete course requirements, no demonstration of critical thought, communication skills very poor. The work is clearly of unacceptable quality according to the evaluation criteria.