

Geography 181: Principles of GIScience

Contact Information

Instructor: Peter Deadman,
Associate Professor, Department of Geography and Environmental Management,
Office: EV1-102,
Office Hours: Mondays 2:00pm to 4:00pm.
If you need to schedule an appointment outside of these drop-in hours, please contact me.
Phone: ext. 33404,
E-mail: pjdeadma@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.

Teaching Assistants

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Course Description

Focus is on the issues and foundations of Geographic Information Science. Topics covered include geographic coordinate systems, map projections, mapping quantitative data, 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:

1. Compare and contrast different classes of maps.
2. Identify and distinguish different types of geographic co-ordinate systems and map projections
3. Identify and apply the computer-based techniques for the production of quantitative maps
4. Recognize and apply the principals of map design to the creation and evaluation of maps.

Course Presentation

Lecture:

Mondays, 10:30am to 12:20pm, in Arts Lecture 113

Labs: Monday (103) 12:30am – 2:20pm -

Tuesday (101) 8:30am – 10:20am -

Tuesday (106) 12:30pm – 2:20pm -

Tuesday (107) 2:30pm – 4:20pm -

Tuesday (108) 6:30pm – 8:20pm -

Thursday (104) 2:30pm – 4:20pm -

Friday (102) 8:30am – 10:20am -

Friday (105) 12:30pm – 2:20pm -

The Galileo Lab

All lab classes will be held in the Galileo GIS Lab (EV1 240). Access to the lab is gained by entering a code in the keypad combination lock on the door of the lab (This term, the code is: 123906). 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 specialised software only available on these computers. This

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will provide you with greater access to the computers in this lab when you need them to complete assignments. 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.

IMPORTANT: Please bring a pair of headphones/earbuds to each of the lab sessions held in the Galileo Lab. You will need these for the tutorial videos.

Additional Course Resources

Lecture Materials

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

Please Note: The Lecture PDF files are provided to simplify the note taking process and to ensure that diagrams are copied correctly. The Lecture files do not replace the lectures. I will add details during class, explaining diagrams, images, and concepts. You are responsible for all information presented in lectures.

Required Textbook:

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

University of Waterloo LEARN Course Environment

LEARN is a web-based course management system that enables instructors to manage course materials (posting of lecture notes etc.), interact with their students (drop boxes for student submissions, on-line quizzes, discussion boards, course e-mail etc.), and provide feedback (grades, assignment comments etc.). Data files required for lab assignments will also be found here.

Logging Into LEARN

Once you have started up your browser, type in the following URL:

<https://learn.uwaterloo.ca/>

Provide your Quest/UWdir userid and password.

Checking Your UserID and Password

Your password can be checked by going to:

<https://watiam.uwaterloo.ca/idm/user/login.jsp>

If you can't get on after checking and resetting your password, please confirm with your instructor that you are on the class roster. Only students with courses using LEARN will have access to the site.

Evaluation

Final grades for the course will be assigned as follows:

- | | |
|--|------------|
| • 9 Lab Assignments | 40% |
| • Test 1 (October 2 nd in class) | 20% |
| • Test 2 (November 6 th in class) | 20% |
| • Test 3 (December 4 th in class) | <u>20%</u> |
| | 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 one week after they have been handed out. Lab assignments must be handed in on or

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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 Office for persons with Disabilities (OPD), 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 the OPD at the beginning of each academic term.

Lecture and Lab Schedule*

Week of	Lecture Topic(s)	Lab Assignment
11 - Sept.	Course Overview/Administration The Nature of Maps	No labs
18 - Sept.	The Scope of Cartography Cartographic Fundamentals	Lab 1: Map Library Resources (5%)
25 - Sept.	Principles of Map Projections Map Projections	Lab 2: Intro to QGIS (4%) Lab 1 Due
2 - Oct.	Test 1 (October 2nd) Map Projections	Lab 3: Obtaining Spatial Data (4%) Lab 2 Due
9 - Oct.	Thanksgiving Holiday – No lecture.	No lab this week
16 - Oct.	Map Projections Map Co-ordinates/Geometric Measurement	Lab 4: Map projections (5%) Lab 3 Due
23 - Oct.	Map Co-ordinates/Geometric Measurement Mapping Quantitative Data	Lab 5: Choropleth Maps (4%) Lab 4 Due
30 – Oct.	Choropleth Maps Choropleth Maps	Lab 6: Proportional Symbol Maps (4%) Lab 5 Due
6 - Nov.	Test 2 (November 6th) Point Symbol Maps	Lab 7: Topographic Maps (5%) Lab 6 Due
13 - Nov.	Terrain Representation Principles of Map Design	Lab 8: Web Mapping (4%) Lab 7 Due
20 – Nov.	Map Design / Cartographic Abstraction Map design / Colour	Lab 9: Map design (5%) Lab 8 Due
27 – Nov.	Understanding Error Web Mapping	Lab 9 Due
4 – Dec.	Review Test 3 (December 4th)	

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

Reading List

The following chapters will be covered in the course text...

<u>Lecture Topic</u>	<u>Readings</u>
The Scope of Cartography	Introduction and Chapter 1
The Nature of Maps and Mapmaking	Chapter 2
Principles of Map Projections	Chapter 5
Mapping Quantitative Data	Chapter 3 & 4
Choropleth Maps	Chapter 8
Principles of Map Design	Chapter 6 & 7
Map Design/Colour	Chapter 11
Map Design/Elements	Chapter 9 & 10

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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/ for more information.]

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.

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.