

GGR273: GEOGRAPHIC INFORMATION AND MAPPING II

Course Outline

DESCRIPTION

This course builds on GGR272 (Geographic Information and Mapping I) and continues the examination of the major theoretical and analytical components of a geographic information system and spatial analysis. Some topics from GGR272 are discussed in more depth and new topics are introduced. The lectures discuss underlying theory and its implementation in GIS software. The assignments give students the opportunity to learn for themselves how to put that theory into practice, gaining more hands-on experience with ESRI ArcGIS software, the most popular GIS and an industry standard in many fields.

INSTRUCTOR

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Online office hours: <http://geogutoronto.adobeconnect.com/donboyes/>

Course website (Blackboard): <http://portal.utoronto.ca> (requires UTORid and password)

Office hours

Online: Thursdays, 3:00-4:00 pm starting January 10. **In person:** open-door policy, or by appointment.

Online office hours will be held using Adobe Connect web conferencing software. You can use the URL above to enter the virtual room. With Adobe Connect, I can show PowerPoint slides from lectures, do live demonstrations of the GIS software, and meet with students individually or many at the same time (you can either ask questions by typing in a chat window or by using a webcam if you prefer).

If you have never attended an Adobe Connect meeting before:

For an overview: http://www.adobe.com/go/connectpro_overview

Test your connection: http://geogutoronto.adobeconnect.com/common/help/en/support/meeting_test.htm

You can use Adobe Connect on an iPhone, iPad, Android phone, and Blackberry Playbook. For more information, see: <http://www.adobe.com/ca/products/adobeconnect/feature-details/adobe-connectmobile.html>

You're welcome to drop by (either virtually or in person) any time I'm free during normal business hours (not right before class, please), but it helps my time management if you are able to arrange an appointment in advance. While you are always welcome to contact me, be sure to first check the course website, including the discussion board and course files to see if the answer to your question is there. If you think your teaching assistant might be able to help, please try them first (again for the sake of time management).

PREREQUISITE

GGR272

LECTURES

Tuesday 10:10-12:00, Sidney Smith Hall, room 1069.

The PowerPoint slides used in class will be made available online as PDF files for students to download prior to each lecture. However, please keep in mind that these files are designed to be part of a presentation. They are not complete lecture notes or study notes; in fact, they often won't make a lot of sense on their own and are definitely not a substitute for coming to class.

SOFTWARE DEMONSTRATIONS

Video clips will be provided online that demonstrate various aspects of using ArcGIS. These will help prepare you for completing the assignments.

READINGS

There is no required textbook for this course. Links to online readings will be provided by the instructor.

EVALUATION

Lab assignments: 35%

Midterm test: 20% (you are responsible for all material taught up to the date of the test)

Final exam: 45% (cumulative)

Assignments

The assignments are designed to help you see the connections between the concepts discussed in the lectures and how those concepts are implemented in the software. By the end of the course, you should be able to make informed decisions about what tools to use and how to use them, both individually to answer specific questions, and in a sequence to solve larger problems. You should also be able to communicate your results in map and text forms, and interpret and discuss the meaning of those results.

Midterm test

Students will be responsible for all course material taught prior to the test date, including lectures, lab assignments, and assigned readings. The test format will be multiple choice and short answer and will be 50 minutes in length.

Final exam

Students will be responsible for all course material for the entire term. The examination format will be multiple choice and short answer questions and will be 3 hours in length.

GIS LAB SESSIONS

In order to complete the assignments, you will need access to the ArcGIS software. The following lab sessions are held each week, **starting the week of Jan. 14:**

Tuesday: 12:10-2:00
 2:10-4:00
Wednesday 1:10-3:00
 3:10-5:00

All lab sessions are held in **Sidney Smith Hall room 620** (Level "G", one floor below street level).

Attendance is not mandatory, but is strongly recommended, as a teaching assistant will be there to introduce assignments, provide assistance, and take up assignments once they have been graded. Please note that the teaching assistant's role is to guide you and make suggestions but, in order to learn the concepts and software, you must be prepared to try things on your own. Your TA will not give you the answers to assignment questions, as this would deny you the chance to learn for yourself. Make sure you monitor the discussion board forums, as this is often where you will get valuable tips and other help.

If you have to work on an assignment outside of your scheduled lab sessions you can install the software on your own computer, or check the lab schedule on the GIS lab room door for times that the room is available for general use.

Switching lab sections: You must only attend the weekly session that you signed up for on ROSI. If you wish to switch to a different lab section, please do so via ROSI. Please do not drop in on other lab sections as there may not be room, and it is not fair to other students for you to use the TA's time when they should be helping students enrolled in that section.

USING THE SOFTWARE ON YOUR OWN COMPUTER

The software used in this course is called ArcGIS for Desktop (Advanced version) made by [ESRI Inc.](#) If you have a Windows computer (either a PC or a Mac that also has Windows installed) you have the option of downloading and installing a free, one-year student edition of ArcGIS on your own computer. Since all of the assignments and necessary data will be available for download from the course website, many students find using ArcGIS on their own computer to be a convenient option so that they do not have to complete all their work in the GIS Lab. You can download the software from the University of Toronto Map and Data Library. For instructions, go to <http://bit.ly/rWuqLi> and if you need installation assistance, contact gis.maps@utoronto.ca. The software is Windows-only, but it is possible to run it on a Mac (for more information, see <http://bit.ly/s3lnFN>). An internet connection is not required to run ArcGIS once it has been installed.

GETTING HELP

Learning how to use software to complete various tasks and solve geographic problems can sometimes be challenging. The ability to work independently is a valuable skill for all GIS users, and it is important that you take advantage of all available resources, including lectures, video demonstrations, and readings in the specified [ArcGIS Help sections](#). However, if you get stuck and are not able to find a solution from the resources provided, you are encouraged to post a question to the course discussion board. Chances are that another student or a TA has encountered a similar problem and will be able to offer advice.

Where to get help:

Technical (software) support: ESRI online Help, [ESRI forums](#), your TA, course instructor

Assignment help: ESRI online help, other readings and podcasts, fellow students, your TA, course instructor

Assignment help via screen sharing: the course instructor can view and, optionally, control what is on your computer *with your permission*. If you are having trouble with the software and/or your assignment, this can be an efficient way to quickly assess the situation and offer possible solutions. You control if, when, and how screen sharing occurs and you will be able to see everything that is happening on your screen. The instructor does not have access to your local computer files, and they are only able to see the window you specify. For more information, go to the following link: [screen-sharing instructions](#).

Lecture/podcast questions: fellow students, course instructor

A note about e-mail vs. online discussions: There is a lot to learn in this course, and you will find that interacting online with other students, the teaching assistants, and the instructor will make your learning experience more efficient and more enjoyable. You are strongly encouraged to use the discussion board forums when asking questions about any of the course material. This allows other students to benefit from the discussion and dramatically improves efficiency in communication. You can subscribe to the forums so that you are notified when there is a new post. If you have a smart phone or tablet, using [Blackboard Mobile Learn](#), can make participation more convenient. E-mail to your TA or the instructor should only be used for personal questions such as requests for deadline extensions due to illness.

COURSE POLICIES

Late penalty

A penalty of 5% of the total mark for the assignment will be applied per day, up to 7 days (excluding weekends and holidays), after which assignments will not be marked. If an assignment is submitted after the deadline, it will be penalized for that day (up to 24 hours after the time it was due, after which an additional 5% will be deducted for each subsequent 24-hour period). If an assignment has been marked and handed back to the class, no other assignments will be accepted (even if it has not been 7 days). Submit answers to assignment questions using the Blackboard pages provided and submit any maps or other figures as JPEG files using the Blackboard assignment tool. Printed or e-mailed submissions are not accepted.

Technical problems

This course requires the use of computers, and many things can go wrong when using them. You are responsible for ensuring that you maintain regular backup copies of your files, use antivirus software (if using your own computer), and schedule enough time when completing an assignment to allow for delays due to technical difficulties. Computer viruses, crashed hard drives, broken printers, lost or corrupted files, incompatible file formats, and similar mishaps are common issues when using technology, and are not acceptable grounds for a deadline extension.

In case of illness

Requests for assignment deadline extensions must be made to the instructor within 5 business days after the deadline, and must be accompanied by an original copy of the official university medical form. Medical forms are accepted at the discretion of the instructor, and must clearly indicate that you were incapacitated for the date of a test or for several days in the case of an assignment (being ill immediately prior to the deadline for a two- or three-week assignment is not sufficient grounds for a deadline extension).

Inquiries about graded term work

Any inquiries must be made within one month of the return date of the work. This is in accordance with Arts and Science rules as stated in the calendar. Please contact the person that did the marking first. If, after discussing the issue with the marker, you are still not satisfied with the explanation for your mark, you should then contact the instructor.

Accessibility needs

The University of Toronto and the course instructor are committed to accessibility. If you require accommodations or have any accessibility concerns, please visit the [Accessibility Services website](#) as soon as possible.

Academic offences

Plagiarism and other academic offences including impersonating another student or providing false or altered medical forms, death certificates, or similar documents will not be tolerated. For more information, please refer to the [Arts and Science Code of Behaviour on Academic Matters](#).

Other Student Support Resources

The university provides a range of student support related to student life and academic success. Learner supports include services related to University Life, Library, Academic skills support, IT support and more. See [Learner Support Available at the University of Toronto](#).

GGR273 COURSE SCHEDULE

Week	Date	Topic	Assigned ¹	Due
1	Jan. 8	Course introduction: course overview and discussion of course administration Discovering what's new in GIS: keeping up with the latest trends in the field		
2	Jan. 15	Geocoding: mapping postal codes and street addresses	Geocoding (10%)	
3	Jan. 22	Remote sensing: how air photos and satellite images are created, stored, and used for interpretation and analysis in a GIS project		
4	Jan. 29	Remote sensing: (continued)	Remote Sensing (5%)	Geocoding (10%)
5	Feb. 5	Raster analysis: introduction to analyzing raster data		Remote Sensing (5%)
6	Feb. 12	Midterm test (<i>the GIS Lab will be open, but no lab sessions will be held</i>)	NO LAB SESSIONS	
*	Feb. 19	Reading week (<i>the GIS Lab will be open, but no lab sessions will be held</i>)	NO LAB SESSIONS	
7	Feb. 26	Raster analysis: continued (with review of geoprocessing) Midterm test results: we will go over the answers to the test	Raster Analysis (15%)	
8	Mar. 5	Levels of model abstraction: the process of converting the real world into a digital GIS file Digitizing, topology, and data models: how file types affect functionality, especially for creating and editing map data by tracing (digitizing)		
9	Mar. 12	Digitizing, topology, and logical data models: continued		
10	Mar. 19	Digitizing, topology, and logical data models: continued Physical data models: the connection between the choice of logical model and how it translates into a GIS file format	Digitizing & Topology (5%)	Raster Analysis (15%)
11	Mar. 26	To be announced...		
12	April 2	Course review: discussion of the final exam including tips on how to prepare; Q&A session regarding any topic in the course – bring your questions!		Digitizing & Topology (5%)

¹ Lab assignments are assigned and due at the start of your lab session during the week listed above (except the remote sensing lab and the last lab, which are due at the end of your lab session).

The instructor reserves the right to modify the topics and schedule during the term. **Note:** should an unexpected technical issue with university system availability or functionality arise, it may be necessary to revise the timing or weighting of the assessments.