

**University of Toronto at Mississauga
Department of Geography and Programs in Environment
Fall 2016**

GEOGRAPHICAL INFORMATION SYSTEMS (GGR278H5F)

Description (from the 2016-17 Academic Calendar)

Introduction to models of representation and management of geographical data for scientific analysis. Basic quantitative methods and techniques for geographic data analysis, including collection, manipulation, description and interpretation. Practical exercises using GIS and statistical software packages with examples drawn from both physical and human geography. [24L, 12P]

Prerequisite: GGR112H5/117Y5/ENV100Y5/ 4.0 credits

Professor

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Teaching Assistants

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Lectures: Mondays 11-1: **DV2080**

Practicums: Sessions begin the second week of classes. Attend your assigned session on Wednesdays. All Practicums are located in CC1160.

Course Website: GGR278H5F in the **My Courses** module at <http://portal.utoronto.ca>

Course Goals

1. Understand foundational cartographic concepts;
2. Understand and practice map reading, measurement, and production;
3. Appreciate difference between, and application of, GIS data structures;
4. Undertake application of GIS data structures using state-of-the-art GIS software;
5. Independent resolution of spatial problems using GIS.

Student Learning Objectives

After successfully completing GGR278H5F students should be able to:

1. Identify basic cartographic and non cartographic elements on a map;
2. Apply cartographic concepts in a digital GIS environment;
3. Demonstrate a basic understanding of the foundational concepts of geographical information systems;
4. Demonstrate basic proficiency in data manipulation, processing, and mapping using a GIS software;
5. Create basic maps of vector and raster data using a GIS software;
6. Engage in an introductory level of spatial analysis using a GIS software;
7. Memorize and use, without aids, the basic terminology with which professionals in these contributing disciplines communicate their work and their research findings.

Access to Course Software:

Course software works on Windows operating system only. You can install windows on your MAC using Parallels (<http://www.parallels.com/ca/>), or Boot Camp (<https://www.apple.com/support/bootcamp/>). Your Professor and your TAs are not available to assist with this process if you decide to proceed.

You can (but are not required to) acquire a copy of the same software being used in the lab, ArcGIS 10.4 using the instructions found at:

<http://mdl.library.utoronto.ca/services/gis-software/esri-software-access>

DOWNLOAD **VERSION 10.4**, you will use the same version in your practical sessions.

You will not receive additional instruction or support for your personal installation of the software. You should make sure that you also install the Spatial Analyst extension.

Helpful on-line resources:

Help with ArcGIS v.10.4 <http://resources.arcgis.com/en/help/>

Dana, P.H., The Geographer's Craft Project, Department of Geography, The University of Colorado at Boulder. Available at: <http://www.colorado.edu/geography/gcraft/contents.html>.
[Accessed 4 September 2014]

ESRI (2016) GIS Dictionary. Available at:
<http://support.esri.com/en/knowledgebase/Gisdictionary/browse> [Accessed 15 August 2016]

Smith, M-D., Goodchild, M., Longley, P. (2009) Geospatial Analysis – a comprehensive guide. 4th ed. Available at: <http://www.spatialanalysisonline.com/HTML/index.html> [Accessed 15 August 2016]

Course Administration

NOTE: You are invited to consult <http://www.utm.utoronto.ca/registrar/important-dates> for information regarding UTM sessional dates, including dates for the dropping or adding of courses and corresponding financial and/or academic implications associated with drop/add procedures and dates.

Evaluation and Important Dates

Date	Description	Course Weight (%)
September 12	Lectures Begin	
September 21	Practical Sessions Begin	
September 12-October 3	Quiz 1 Available	7
October 5	Due: Assignment 1 Cartography	14
November 2	Due: Assignment 2 Vector GIS	14
October 17-November 7	Quiz 2 Available	7
November 30	Due: Assignment 3 Raster GIS	14
November 14-December 5	Quiz 3 Available	7
December 5	Exam Review	
December 6-7	Study Break	
December 8 Exams Begin	Final Exam	37

Quizzes: A set of open book quizzes managed through Blackboard. You will be challenged to locate, define, explain and apply concepts and methods from both lectures and assignments. Quiz availability in the table above refers to the time over which each quiz will be available for completion on Blackboard. Each quiz will be available from 9:00 a.m. on the start date, until 5:00 p.m. on the end date, as posted in the table above. **YOU WILL HAVE A LIMITED NUMBER OF ATTEMPTS FOR QUIZ RETAKE.**

Final Exam: Cumulative 2 hour testing of recall and comprehension of all course material. You are required to memorize and use, without aids, the basic terminology with which professionals in the contributing disciplines communicate their work and their research findings. This includes the ability to recognize and understand equations that define important concepts or measurements covered in this course.

Assignments: Three assignments of sufficient length that you will need to work on them during and outside of your assigned practicum periods. You will work with state of the art GIS software and real-world data to develop technical proficiency at an introductory level. You will rely heavily of the ArcGIS Help system, independent and collaborative thinking, and a heavy dose of

trial and error to complete your assignments. **Assignments will be submitted electronically via BlackBoard.**

LECTURE SCHEDULE: Mondays, 11:00 a.m. – 1:00 p.m. in DV2080

NOTE: The following information offers a general guideline for the scheduling of lecture material. Depending on the background knowledge of the class we may accelerate through, or take more time on specific topics.

1. **September 5: Holiday**
2. **September 12 - October 10: Introduction to GIS and Foundational Concepts in Cartography**
3. **October 11-14: Fall Reading Week**
4. **October 17 - November 7: Databases and Vector GIS**
5. **November 14 – November 28: Raster GIS**
6. **December 5th: Raster GIS and Exam Review**

Course Policy

While the application of computers and GIS software to the study of geographical problems is emphasized in this course, students are expected to demonstrate their knowledge of all course material (e.g., lecture notes and assigned readings, assignment materials). Students are required to engage in a significant amount of independent study and computer-based laboratory work. To be successful, students will have to commit to **working on assignments outside of regularly scheduled lab sessions and tutorials**. Detailed information on how to construct and submit assignments will be explained during lab sessions. All assignments are due at the times indicated by the instructor.

Recording of Lecture or Lab Material: Audio recording of lecture material is permitted **only with the written consent of the instructor**. Still photography or the recording of video at any time during the course – in the labs, or in the lecture theatre is **expressly forbidden**.

E-mail Communication: Students are advised to consult www.enough.utoronto.ca for information on university policy concerning the appropriate use of information and communication technology. Electronic communication for this course will be managed using the communication tools available through the course website: (GGR278H5 in the **My Courses** module at <http://portal.utoronto.ca>).

ALL electronic messages are to be composed in a respectful, appropriately constructed manner (e.g., complete sentences). Students are **required** to submit questions concerning lecture and lab material directly to the course website. This approach will benefit the entire class, as many students will likely have similar questions about course content. E-mails sent to the TA or professor concerning course content (lecture or lab material) will not be read. If you require

further assistance you are advised to attend the office hours allocated to this course by your TAs and professor.

E-mail for other reasons (e.g., requesting an appointment) must include in the subject line, the course code, student name, and ID. Unless otherwise directed, e-mails containing attachments will not be read. E-mails must be sent using an official University of Toronto account (www.utorid.utoronto.ca); e-mail from other domains (e.g., hotmail, Rogers, etc.) will be ignored.

E-mail should NOT be viewed as an alternative to meeting with the TA or professor during office hours. Nor should e-mail be used as a mechanism to receive private tutorials (especially prior to tests) or to explain material that was covered in missed lectures or labs. Not receiving replies to posted messages or e-mails from the TA or professor, or not receiving them in time, will not be an acceptable excuse for pleas for extensions to assignment or exam deadlines.

In-class or Online QUIZ/TESTS: Students **CANNOT** petition to re-write a quiz/test once the test has begun. If you are feeling ill, please do not start the online or in-class test and seek medical attention immediately. You must have a physician fill out a U of T Student Medical Certificate and submit a request via the online Special Consideration Request form @ <https://utmapp.utm.utoronto.ca/SpecialRequest> within 24 hours.

Missed Term Work (Assignment/Lab – as per Department of Geography policy):

Late assignments will be subject to a late penalty of 10% per day (including weekends) of the total marks for the assignment. Assignments submitted five calendar days beyond the due date will be assigned a grade of zero. Assignments handed in AFTER the work has been returned to the class cannot be marked for credit.

For accommodations on late/missed assignments please see section on **“Extension of Time”**.

Missed Term Work (Quiz/Test – as per Department of Geography policy):

In courses with final exams, there will be no re-writes or make-ups for term tests/quizzes missed for University-accepted, verifiable reasons. Instead, the final exam will be re-weighted by the value of the term test/quiz.

Informing Your Professor and Submitting Appropriate Documentation:

The following steps must be completed in order to be considered for academic accommodation for any missed quiz/test.

1. Students must inform their professor in writing (e-mail is acceptable) within 24 hours of a test date of any circumstances that prevent them from writing a test.
2. Students must complete an online Special Consideration Request @ <https://utmapp.utm.utoronto.ca/SpecialRequest>. Students who miss a test due to circumstances beyond their control (e.g. illness or an accident) can request that the Department grant them special consideration. You must inform your instructor within 24 hours and you have 48 hours from the date of the missed test to submit your online request (late requests will NOT be considered without a "letter of explanation" as to why the request is late). You must present your case to the Department (**not the Instructor**).

Note: The system only supports Microsoft Internet Explorer and Firefox for the time being.

3. Original supporting documentation (e.g. Verification of Student Illness or Injury form, accident report, etc) **MUST BE SUBMITTED to the DROP BOX (labeled “Environment and Geography Petition Documentation”) located outside Room 3282, Davis Building.** Supporting documentation is required within one (1) week of submitting your online request.

Please Note: If you missed your test for a reason connected to your registered disability, please be advised that the department will accept documentation supplied by the UTM AccessAbility Resource Centre.

Note: (i) ROSI declarations are not accepted as supporting documentation.

(ii) If your reason for absence is due to a last minute flight due to a family emergency (illness/death etc.) you must provide your flight itinerary INCLUDING the date the flight was purchased as well as boarding passes in addition to proof of death/illness/accident.

4. **Verification of Student Illness or Injury** forms: Documentation MUST show that the physician was consulted within ONE day of the test date. A statement merely confirming a report of illness made by the student is NOT acceptable (such as, “This patient tells me that he was feeling ill on that day.”). **Verification of Student Illness or Injury** forms can be found on the Office of the Registrar’s webpage (<http://www.illnessverification.utoronto.ca/getattachment/index/Verification-of-Illness-or-Injury-form-Jan-22-2013.pdf.aspx>).

Please note that the written explanation and documentation that you submit represents an appeal from you, requesting the opportunity to account for that portion of your grade in some other manner. If an appeal is not received, or if the appeal is deemed unacceptable, you will receive a grade of zero for the item you missed. If the appeal is granted – that is, your reason for missing the item is considered acceptable by the committee – then a mechanism for accounting for the grade value of the missed item will be discussed.

A Departmental committee evaluates each request. **Decisions will be communicated by email within two weeks of receipt of all completed documents.** Note: It is your responsibility to ensure your email account is working and able to receive emails. Claims that a Departmental decision was not received will NOT be considered as a reason for further consideration. Contact Sabrina Ferrari (sabrina.ferrari@utoronto.ca) Academic Counselor, should you NOT receive notification of your decision within 2 weeks of submission.

Note that holidays and pre-purchased plane tickets, family plans, your friend’s wedding, lack of preparation, or too many other tests/assignments are not acceptable excuses for missing a quiz, a test, an item of term work, or an extension.

Extension of Time

The following steps must be completed in order to be considered for academic accommodation for any assignment extensions. Assignments handed in AFTER the work has been returned to the class cannot be marked for credit.

1. Students must inform their professor in writing (e-mail is acceptable) **IN ADVANCE** of an assignment due date of any circumstances that prevent them from submitting their assignment on time.
2. Students must complete an online Special Consideration Request @ <https://utmapp.utm.utoronto.ca/SpecialRequest> **IN ADVANCE** of the assignment due date. Note: The system only supports Microsoft Internet Explorer and Firefox for the time being.
3. Original supporting documentation (e.g. Verification of Student Illness or Injury form, accident report, etc) **MUST BE SUBMITTED to the DROP BOX (labeled “Environment and Geography Petition Documentation”) located outside Room 3282, Davis Building.** Supporting documentation is required within one (1) week of submitting your online request.

Please Note: If you missed your test for a reason connected to your registered disability, please be advised that the department will accept documentation supplied by the UTM AccessAbility Resource Centre. Note: (i) ROSI declarations are not accepted as supporting documentation. (ii) If your reason for absence is due to a last minute flight due to a family emergency (illness/death etc.) you must provide your flight itinerary INCLUDING the date the flight was purchased as well as boarding passes in addition to proof of death/illness/accident.

4. **Verification of Student Illness or Injury** forms: Documentation MUST show that the physician was consulted within ONE day of the assignment due date. A statement merely confirming a report of illness made by the student is NOT acceptable (such as, “This patient tells me that he was feeling ill on that day.”). **Verification of Student Illness or Injury** forms can be found on the Office of the Registrar’s webpage (<http://www.illnessverification.utoronto.ca/getattachment/index/Verification-of-Illness-or-Injury-form-Jan-22-2013.pdf.aspx>).

Original supporting documentation (e.g. Verification of Student Illness or Injury form, accident report, etc) **MUST BE SUBMITTED to the DROP BOX (labeled “Environment and Geography Petition Documentation”) located outside Room 3282, Davis Building.** Note: ROSI declarations are not accepted as supporting documentation. You are expected to submit your request to the Department before the due date of the assignment, unless demonstrably serious reasons prevent you from doing so. In the event of an illness, if you are seeking a one-day extension, Verification of Student Illness or Injury forms must confirm that you were ill on the due date of the assignment; if you are requesting a longer extension, your documentation must specify exactly the length of the period during which you were unable to carry out your academic work. For extensions of time beyond the examination period you must submit a petition through the Office of the Registrar. <http://www.erin.utoronto.ca/index.php?id=6988>

A Departmental committee evaluates each request for an extension of time. **Decisions will be communicated by email within two weeks of receipt of all completed documents. Please note that students are required to submit their assignment/lab as soon as they are able and they should NOT wait for the decision of the committee.** Note: It is your responsibility to ensure your email account is working and able to receive emails. Claims that a Departmental decision was not received will NOT be considered as a reason for further consideration. Contact Sabrina Ferrari (sabrina.ferrari@utoronto.ca) Academic Counsellor, should you NOT receive notification of your decision within 2 weeks of submission.

It is your responsibility to follow the appropriate procedures and submit requests for special consideration on time. Failure to do so may result in the committee denying your request.

Should you require further information regarding Special Considerations, please contact the **Academic Counselor:**

Sabrina Ferrari

Undergraduate Academic Counselor

Room 3282, Davis Building, Telephone: 905-828-5465

email: sabrina.ferrari@utoronto.ca