

GIS for Public Health (GGR 372)
Winter Semester 2020
University of Toronto
Lecture: Wednesdays 2pm-4pm – Location: MP 137
Labs: Wed. 9am-10am – Location: RW107 or Fri. 9am-10am – Location: RW109

Professor:

Dr. Michael J. Widener
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Teaching Assistant:

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Office Hours: Time and Location TBA

Required Materials:

- Cromley, Ellen K., and Sara McLafferty. *GIS and public health*. Guilford Press, 2012.

Course description:

The goal of this course is to leave students with appreciation of the power of Geographic Information Systems (GIS) to explore and analyze spatial health and medical data. The course will focus on organizing health data in a GIS, clustering detection methods, and basic spatial statistics. Other topics like agent-based models and visualization techniques will be touched upon. Lab work will provide hands on experience with example data, leaving students with a firm grasp of contemporary health and medical problems and a skill set of spatial analytical methods that can be used to solve them.

Learning Outcomes:

Given the completion of the course requirements, students will be able to:

- 1) understand the scope of medical and health geography and how the discipline relates to the fields of medicine, public health, and environmental health;
- 2) implement a variety of common statistical and computational methods used to understand the geography of health; and
- 3) produce high quality, professional maps that communicate a variety of health and medical topics.

Prerequisite:

Students are strongly encouraged to have taken GGR272 Geographic Information and Mapping. Analytical methods (GGR270) or another basic statistics/mathematics course is helpful, but not required. If you find any of the simple math (there's not much but there is some) presented in this course is difficult, please consider visiting the Math Help Centre.

Grading:

Lab Assignments (25%)
Lecture Assignments (10%)
Midterm Test (30%)
Final Exam (35%)

Lecture and Lab Organization:

This course will have a two-hour lecture every Wednesday at 2pm, and a one-hour lab period (9am either Wednesday or Friday). During the lecture I will present information on a variety of GIS and health geography topics, as well as discuss the assigned readings and relevant current health events.

You are also required to sign up for a lab hour, where you will complete GIS tutorials and assignments. These tutorials and assignments specifically focus on acquiring, editing, visualizing, and analyzing spatial health data.

Lab assignments must be submitted via portal.utoronto.ca (blackboard) two weeks after their assigned date, prior to lecture.

Outline of Course (adjustments may be made to ensure all material is covered):

Week Number	Class Date	Lecture Topic/Readings (Chapters from 'GIS and Public Health')	Lab Assignment
Week 1	January 8	Overview of Course and Medical/Health Geography (Intro Chapter)	None
Week 2	January 15	GIS and Spatial Data (Chapters 1-2)	Lab 1: GIS Vulnerability Index
Week 3	January 22	Spatial Databases for Public Health (Chapter 3)	-
Week 4	January 29	Mapping Health Information (Chapter 4)	<data viz review in tutorial>
Week 5	February 5	Detecting Clusters of Health Events (Chapter 5)	Lab 2: Autocorrelation/Clusters
Week 6	February 12	Clusters, cont. (TAKE HOME MIDTERM)	-
Week 7	February 19	<i>Reading Week – No class or lab</i>	
Week 8	February 26	Disease Diffusion (Chapter 7-8)	Lab 3: Disease Diffusion
Week 9	March 4	Social Network Analysis (Chapter 7-8)	-
Week 10	March 11	Access to Health Services I (Chapter 9)	Lab 4: Accessibility Measures
Week 11	March 18	(may be virtual) Access to Health Services II (Chapter 10)	-
Week 12	March 25	Public Participation GIS & Health and/or Health Disparities (Chapters 11-12)	Lab 5: Facility Location
Week 13	April 1	Public Participation GIS & Health and/or Health Disparities (Chapters 11-12)	-
Exam Period	TBA	Final Exam	None

Reading and Lecture Assignment Schedule:

All chapters from “GIS and Public Health” should be read prior to class.

Occasionally, writing assignments will be handed out in class – i.e. “lecture assignments”. Some of these will be handed in after their completion in class, while others are to be handed in at the beginning of the next class. I will be clear about these deadlines in class. Generally, these assignments will consist of worksheets reviewing a concept covered in lecture (e.g. a simple cluster detection method) or a short 250-500 word discussion write-up on an extra assigned reading. **Assume we will have one of these every class.**

Late assignments:

Every day an assignment is late, it will be docked 5% per day. After 7 days, the assignment will no longer be accepted and the student will receive a 0%.

Students who miss an assignment but produce one of the following documents will be allowed to hand in their work late with no penalty:

- **UofT Verification of Illness or Injury Form:** This form, available to students online, is restricted to a select group of medical practitioners and provides responses to the relevant questions about the absence.
- **Student Health or Disability Related Certificate:** A streamlined variant of the UofT Verification of Illness or Injury Form provided by our own internal doctors who can vouch for health problems without so many details.
- **A College Registrar's Letter:** This is a letter that only senior College Registrarial staff are authorized to write. It should identify itself as a "College Registrar's Letter."
- **Accessibility Services Letter:** This sort of letter may address needed accommodations or document on-going disability issues that have made absence or lateness unavoidable.

Make up quizzes, tests, or exams will not be given, unless a student produces any of the above documentation.

For more on late and missed work, please refer to the academic handbook:

<http://www.artsci.utoronto.ca/faculty-staff/teacher-info/academic-handbook-for-instructors>

General student issues:

If students have any questions or issues not covered in the syllabus, they are expected to email the professor or speak with him after class or during office hours. Remember to utilize your professor's office hours if you're having trouble!

Accessibility Needs:

The University of Toronto is committed to accessibility. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact Accessibility Services as soon as possible: disability.services@utoronto.ca or <http://studentlife.utoronto.ca/accessibility>

Academic Integrity:

All work turned in by students must be their own. Do not cheat or plagiarize. The Department and University treat all cases of cheating and plagiarism as serious offenses and sanctions are severe. You should be familiar with the university's Code of Behaviour on Academic Matters:

<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>.

Note also that using information directly from sources such as books, articles, videos, the Internet or work of fellow students without proper citation is considered plagiarism. Quotation marks are required when using someone else's words. Changing a few words in a sentence is not enough to make it your own.

Please refer to this U of T document for more information about plagiarism: "How not to plagiarize" (<http://www.writing.utoronto.ca/advice/using-sources/how-not-to-plagiarize>).