

snapshot of the health of the City of Hamilton. Using your knowledge of how to use colours and classification systems to manipulate data you will illustrate through a series of maps how a single data set can be used to creating a seemingly endless number of conclusions to the untrained eye. The report to accompany the maps will be an assessment of the value to the information to the community and policy makers.

Map Data and Manipulation (40%)

Students will be given the tools to find/create a spatial dataset that can be used to depict an issue (environmental/social/health/economic) in Hamilton, Ontario. This capstone assignment will require a series of maps illustrating how a single dataset can be used to convey multiple messages through manipulation of scale and colour.

Seminar (10%):

Working in groups of 1-3 students will lead a class discussion on a map they are required to find.

Participation (10%):

Participation is extremely important for a class such as this. Each week we will be building on the knowledge of the week before making attendance imperative. Each week there will be small deliverables and class discussion that everyone is expected to participate in.

Course Schedule

Note: all readings should be completed **PRIOR** to class on the week for which they are assigned

A. Definitions & Theoretical Approaches

Week 1 (January 8) introduction: What is Spatial Data?

- Class will go over the rules and regulations of the GIS lab
- Go over the basics of Geographic Information Systems

Week 2 (January 15): Historical Maps

- Class will meet on January 15 in the Lloyd Reeds Map Collection on the first floor of Mills Library
- **Required Readings:**
 - Explore the Lloyd Reeds Map Collection: <https://library.mcmaster.ca/maps/>. You must come to the Monday meeting with a map from the digital archives you find interesting
 - Explore the City of Hamilton iMapper Program: <http://map.hamilton.ca/iMapper.aspx>

Week 3 (January 22): Open Source Data

- Discuss data availability on campus

Required Readings:

- Robinson, A. C., Kerski, J., Long, E. C., Luo, H., DiBiase, D., & Lee, A. (2015). Maps and the geospatial revolution: teaching a massive open online course (MOOC) in geography. *Journal of Geography in Higher Education*, 39(1), 65-82.
- Explore the Scholars GeoPortal: <http://geo2.scholarsportal.info/>
- Explore the QGIS Project: <http://www.qgis.org/en/site/>

Week 4 (January 29): The importance of colour and scale

- **Required Readings:**
 - Harrower, M., & Brewer, C. A. (2003). ColorBrewer.org: an online tool for selecting colour schemes for maps. *The Cartographic Journal*, 40(1), 27-37.
 - Nelson, J. K., & Brewer, C. A. (2015). Evaluating data stability in aggregation structures across spatial scales: revisiting the modifiable areal unit problem. *Cartography and Geographic Information Science*, 1-16.

Week 5 (February 5): Health and Social Justice

○ **Required Readings:**

- Tanser, F. C., & Le Sueur, D. (2015). The application of geographical information systems to important public health problems in Africa. *International Journal of Health Geographics*, 1(4), 9.
- Maclachlan, J. C., Jerrett, M., Abernathy, T., Sears, M., & Bunch, M. J. (2007). Mapping health on the Internet: A new tool for environmental justice and public health research. *Health & place*, 13(1), 72-86.

Week 7 (February 12): Fall Break – No classes

Week 8 (February 19): Code Red

- Guest Lecturer: Pat DeLuca: Code Red
- **Required Readings:**
 - TBD by guest lecturer

Week 9 (February 26): Python Coding

- **Required Readings:**
 - Explore the Python for ArcGIS website:
<http://resources.arcgis.com/en/communities/python/>

Week 10 (March 4): Social Media and Mapping

- **Required Readings:**
 - Huang, Q., Cao, G., & Wang, C. (2014). From Where Do Tweets Originate?-A GIS Approach for User Location Inference.
 - Funayama, T., Yamamoto, Y., Tomita, M., Uchida, O., & Kajita, Y. (2014, November). Disaster mitigation support system using Twitter and GIS. In *ICT and Knowledge Engineering (ICT and Knowledge Engineering), 2014 12th International Conference on* (pp. 18-23). IEEE.
 - Samet, H., Adelfio, M. D., Fruin, B. C., Lieberman, M. D., & Sankaranarayanan, J. (2013). PhotoStand: A map query interface for a database of news photos. *Proceedings of the VLDB Endowment*, 6(12), 1350-1353.

Week 11 (March 11): Public Participation GIS

- **Required Readings:**
 - Brown, G., & Weber, D. (2011). Public Participation GIS: A new method for national park planning. *Landscape and urban planning*, 102(1), 1-15.
 - Tang, Z., & Liu, T. (2015). Evaluating Internet-based public participation GIS (PPGIS) and volunteered geographic information (VGI) in environmental planning and management. *Journal of Environmental Planning and Management*, 1-18.

Week 12 (March 18): GIS and Natural Disasters - Discussion

- **Required Readings:**
 - no required readings

Week 13 (March 25th): Student Choice

- Throughout the semester we will be going over many different ways spatial data and cartography is used. Over the weeks prior to this the class will be prompted to create a reading list and topics for this week of class. All discussions will be led by the students with the instructor as a facilitator.
- **Required Readings:**
 - TBD

Week 14 (April 1): Wrap-up and Discussion

- Students will be given the opportunity to discuss the course and create a class wide reflection on the takeaways of the class and what they will do with the information moving forward.
- **Required Readings:**
 - TBD

Policy Statements

Assignment Deadlines & Missed/Late Work:

Students are expected to hand in all assignments on the specified due dates. Late submissions will be subject to a penalty of 20% per day (including weekend days). Assignments submitted after the beginning of class on the due date will be counted as one day late. No assignments will be accepted after the last day of classes.

Given that some course assignments require electronic submission, you should familiarize yourself with the Avenue to Learn Assignment in advance of the deadlines, and ask for assistance as necessary. Problems with electronic submission WILL NOT be accepted as an excuse for lateness.

McMaster Policy on Academic Integrity

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences—e.g., the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university. It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty, please refer to the [Academic Integrity Policy](#), located at: <http://www.mcmaster.ca/academicintegrity>.

The following illustrates only three forms of academic dishonesty: 1) Plagiarism—e.g., the submission of work that is not one's own or for which other credit has been obtained. 2) Improper collaboration in group work. 3) Copying or using unauthorized aids in tests and examinations.

MSAF Statement

McMaster Student Absence Form (MSAF):

In the event of an absence, students should review and follow the Academic Regulations in the Undergraduate Calendar "Requests for Relief for Missed Academic Term Work." Please consult the MSAF statement on our website (<https://artsci.mcmaster.ca/forms-requests/>) and direct any questions or concerns to Shelley Anderson or Madeline Van Impe in the Arts & Science Program Office.

Academic Accommodation of Students with Disabilities Statement

Academic Accommodation of Students with Disabilities:

Students who require academic accommodation must contact [Student Accessibility Services \(SAS\)](#) to make arrangements with a Program Coordinator. SAS can be contacted by phone 905-525-9140 ext. 28652 or email sas@mcmaster.ca. For further information, consult McMaster University's [Academic Accommodation of Students with Disabilities](#) policy.

Academic Accommodation for Religious, Indigenous, or Spiritual Observances (RISO) Statement

Academic Accommodation for Religious, Indigenous, or Spiritual Observances (RISO):

Students requiring academic accommodation based on religious, indigenous, or spiritual observances should follow the procedures set out in the RISO policy. Students requiring a RISO accommodation should submit their request to their Faculty Office (i.e. to Shelley Anderson or Madeline Van Impe in the Arts & Science Program Office) normally within 10 working days of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes,

assignments, and tests.

Email Contact and Student Responsibility Statement

Please Note:

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L, and/or McMaster email. It is the responsibility of students to check **their McMaster email** and course websites regularly during the term and to note any changes. Announcements will be made in class and by using the course email distribution list.

Submission Standard Guidelines

The submission guidelines for this course meet the Platinum standard as outlined by the Academic Sustainability Programs Office. All work must be submitted in the following format: online.

Authenticity/Plagiarism Detection Statement

In this course we will be using a web-based service (Turnitin.com) to reveal authenticity and ownership of student-submitted work. Students will be expected to submit their work electronically either directly to Turnitin.com or via Avenue to Learn (A2L) plagiarism detection (a service supported by Turnitin.com) so it can be checked for academic dishonesty. Students who do not wish to submit their work through A2L and/or Turnitin.com must still submit an electronic and/or hardcopy to the instructor. No penalty will be assigned to a student who does not submit work to Turnitin.com or A2L. All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, other software, etc.). To see the Turnitin.com Policy, please go to www.mcmaster.ca/academicintegrity.