

**DEPARTMENT OF SOCIOLOGY  
UNIVERSITY OF TORONTO MISSISSAUGA**

**SOC350H5F LEC0101  
Quantitative Analysis  
Syllabus  
Fall 2022**



**Course Information**

<b>Class Meeting Day &amp; Time</b>	Tuesdays 1:10 PM – 3:00 PM
<b>Class Location</b>	MN 1100
<b>Lab Meeting Day &amp; Time</b>	Tuesdays 3:10 PM – 4:00 PM (Practicum 0101)
<b>Lab Location</b>	MN 2170 (Practicum 0101)
<b>Instructor</b>	Professor Smith (she/her)
<b>Office Location</b>	MN 6202 or Zoom Room [REDACTED]
<b>Office Hours</b>	Tuesdays 11:00 AM – 12:00 PM or by appointment
<b>E-mail Address</b>	via Quercus Messaging
<b>Course Web Site</b>	[REDACTED]
<b>Teaching Assistant</b>	[REDACTED]
<b>E-mail Address</b>	via Quercus Messaging

## Course Description

The course is a continuation of SOC222H5 (Measuring the Social World) and introduces students to more advanced applications of regression analysis. In addition to producing and interpreting regression models, this course also focuses on diagnostic tools for addressing outliers and multicollinearity, as well as regression with categorical independent variables and dependent variables (including a basic introduction to logistic regression). This course is mainly project based. Students will develop their own research questions and hypotheses and use statistical software to analyze data in order to provide evidence for their hypotheses. All students in the Sociology and Criminology, Law and Society Specialist programs are required to take this course.

*Prerequisite:* SOC205H5 or SOC231H5 and SOC221H5 and SOC222H5

*Exclusion:* SOC300H1 or SOC252H1 (SSc S)

*Distribution Requirement:* SSc S

It is your responsibility to ensure that the prerequisites for this course have been met. Students without the prerequisites can be removed at any time. No waivers will be granted.

## Detailed Course Description

This term we will focus on four broad types of quantitative analysis: (Module 1) descriptive quantitative analysis, (Module 2) multivariate analysis, (Module 3) spatial analysis, and (Module 4) network analysis. We will use the open-source R and RStudio software packages for all four modules.

## Learning Outcomes

1. Become familiar with the open-source statistical software R and RStudio and gain confidence in using it for your independent research
2. Gain confidence in locating, evaluating, acquiring, importing, and cleaning secondary data sets
3. Build and interpret multivariate regression models
4. Conduct and interpret spatial analysis
5. Conduct and interpret network analysis
6. Conduct an independent quantitative analysis
7. Practice clear and effective communication about quantitative analyses through writing and speaking

## Textbooks and Other Materials

All readings and course media will be available through the library or through links in Quercus.

Students will need regular access to a reliable, up-to-date laptop. Several software installations will be required on your computers. Please notify Professor Smith right away if you do not have access to the required technology. UTM Library has laptops available for loan.

Every attempt will be made to follow this list, but it is subject to change at the discretion of the instructor.

## Evaluation Components

Type	Description	Due Date	Weight
Assignment	Weekly In-class Assignments, the lowest scoring assignment is dropped	On-going	14%
Assignment	Beginning of Term Check-in Survey	2022-09-13	0.5%
Assignment	Midterm Check-in Survey	2022-10-18	0.5%
Assignment	Lab Assignment 1 Descriptive Analysis	2022-09-27	15%
Assignment	Lab Assignment 2 Multivariate Analysis	2022-10-18	15%
Assignment	Lab Assignment 3 Spatial Analysis	2022-11-01	15%
Assignment	Lab Assignment 4 Network Analysis	2022-11-15	15%
Assignment	Final Project	2022-12-06	25%
<b>Total</b>			<b>100%</b>

You should receive at least one significant mark (15%) before the last day you can drop a course without academic penalty.

Please note that Grades in Quercus gives early access to preliminary grades; it does not represent your official final marks. For final grades log on to [ACORN](#).

## Grading

All details, instructions, and rubrics will be posted on Quercus.

## Class/Seminar Format

Welcome back to campus! I am optimistic about our in-person semester together in Maanjiwe nendamowinan. I did teach Soc 350 in-person last year, and we had a great experience.

I didn't learn quantitative analysis from a textbook or from lectures; I learned quantitative analysis by being presented with puzzles, needing to solve those puzzles, and figuring how to solve them (often through a lot of trial and error). I also learned that quantitative analysis is dynamic, meaning that the methods, techniques, and code update and change. I would learn a set of techniques and how to run them on my data, but then a few years later I would find a new, more efficient, and sometimes more analytically sophisticated improvement to my previous methods. In Soc 350, I don't want to teach you static techniques that will be outdated in five years. Rather, I want to expose you to four broad types of quantitative analysis and help you learn how to find online resources and crowdsourced tools to help you implement the different types of quantitative analyses for this class and for your future research and/or work. The best way to do this is through problem-solving. Please come to class and tutorials prepared for problems and puzzles, thinking through the logic and steps of the puzzle, finding tools, some frustration with code and computers, and eventual solutions.

There will be very little "lecturing" in Soc 350. Rather, I will focus our in-person classroom time on the following: setting up problems; showing demonstrations; explaining decisions; introducing some nuts, bolts, and best practices for quantitative analysis; and reviewing solutions. There will be a lot of hands-on work and partner work during our in-class meetings when that the TA and I will be available as resources. Please bring your fully updated and fully charged laptop to class every week. If you do not have regular access to a reliable laptop, please visit the UTM library to learn about the laptop lending program.

After class, you will have your labs with your TA in a different classroom. These are a continuation of what we begin in class, but with more opportunities for individual support and review with the TA. If we run out of time during lecture, the activity will continue during lab. Labs are also when you will work on your lab assignments and research projects with your TA.

The reading list sometimes includes a required reading that provides an example of the quantitative methods that we will be covering in that module. I will provide guides on how to read these articles, as I expect you to come to class ready to discuss the methods. The evaluation component for the readings will come in the form of in-class assignments.

Our reading list also includes Methods Resources for each unit. These are not traditional course readings; rather, they provide code, exercises, and technical aspects of the methods using R/RStudio software. While these resources look (and in some cases are) intimidating, they will help us get started with some of the techniques and provide us with a current (and in some cases dynamic) resource that can help us move forward more independently in our favorite analytic techniques. Unlike the required readings, you are not required to read the methods resources word-for-word, but I do expect you to learn how to use these resources. As new tools, articles, and resources are regularly made available, please approach the reading list with flexibility as I may substitute pieces if I find something that I think will help us achieve the learning objectives of the course more efficiently.

## Professor Smith's Quercus Tips

- I love Quercus! I have used several online course management systems in my years of teaching, and Quercus (a.k.a. Canvas) is the best. I have years of experience using this system (which means I also understand its limitations well). If you are struggling to find what you need, please drop in to my office hours, and I can help you navigate the system and become more confident with its tools.
- You will need to log in to Quercus regularly for this class. All course materials, assignments, instructions, and announcements will be posted there. I try to minimize the use of external applications whenever possible—even email.
- If you find that you are missing information and notifications on Quercus, you can update your notification settings for all your classes. Here are the [instructions](#) on how to do this.
- The messaging system in Quercus is very effective at keeping all our communications in one place. Your name and course enrolment (and optional profile photo) always accompany your Quercus messages, which helps me know who you are right away, which class of mine you are in, and keeps our communication organized. Please use the messaging system for all course-related communication with the TA and me. You can set up Quercus to forward all messages to your email, but please reply to all messages using Quercus.
- For some assignments, you will be directly submitting text to the assignment (rather than uploading a file). For these assignments, I recommend that you write your assignments or responses in a document outside of Quercus. Then copy, paste, and fix the formatting in Quercus and then submit. I have had many students lose their work when clicking submit because of a lost or weak internet connection. Their brilliant writing disappeared into the internet void. Writing your assignment in an external document creates a backup copy and will save you from having to rewrite your work.
- When we mark your work, we actually have three ways to provide you feedback: through the [rubric](#), through the [assignment comment feature](#), and for assignments that require uploading a document through [mark up on a pdf version](#) of your paper. (I have provided three links with instructions on how to locate the different kinds of feedback.)
- Please upload a photo or avatar to your Quercus account. These will appear in your Quercus messages and groups and help the TA and me learn who is who in our class.
- The word “quercus” is Latin for oak. Our learning management system was named this after [UofT's crest](#) that features an oak tree.



## Course Schedule

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**Date**

**Topic**

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### Week 1: Introduction

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**Required Reading**

Syllabus

**2022-09-13**

**Assignments**

In-class Assignment 1 (due 3:00 PM)

Beginning of term check-in survey (due 11:59 PM)

**Lab**

Install R, R Studio, and practice R basics

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### Week 2: Descriptive Analysis

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**Required Reading**

Peel Social Lab. 2021. Student Survey Wave 1, Cohort 2020-21, Public Dataset Codebook.

[https://www.utm.utoronto.ca/peel-social-lab/sites/files/peel-social-lab/public/shared/PSL\\_Wave%201\\_2020\\_21\\_Codebook.pdf](https://www.utm.utoronto.ca/peel-social-lab/sites/files/peel-social-lab/public/shared/PSL_Wave%201_2020_21_Codebook.pdf).

**2022-09-20**

**Methods Resources**

Navarro, Danielle. 2019. "Descriptive Statistics." In *Learning Statistics with R*. Creative Commons. <https://learningstatisticswithr.com/book/>.

**Assignments**

In-class Assignment 2 (due 3:00 PM)

**Lab**

Begin Lab Assignment 1

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## Week 3: Descriptive Analysis

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### Required Readings

Mansky, Jackie. 2018. "W.E.B. Du Bois' Visionary Infographics Come Together for the First Time in Full Color." *Smithsonian Magazine*, November 15.  
<https://www.smithsonianmag.com/history/first-time-together-and-color-book-displays-web-du-bois-visionary-infographics-180970826/>.

2022-09-27

### Methods Resources

Navarro, Danielle. 2019. "Drawing Graphs." In *Learning Statistics with R*. Creative Commons. <https://learningstatisticswithr.com/book/>.

### Assignments

In-class Assignment 3 (due 3:00 PM)  
Lab Assignment 1 (due 11:59 PM)

### Lab

Finish Lab Assignment 1

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## Week 4: Multivariate Analysis

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### Methods Resources

Navarro, Danielle. 2019. "Linear Regression." In *Learning Statistics with R*. Creative Commons. <https://learningstatisticswithr.com/book/>.

2022-10-04

### Assignments

In-class Assignment 4 (due 3:00 PM)

### Lab

Begin Lab Assignment 2

2022-10-11

## Reading Week

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## Week 5: Multivariate Analysis

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### Methods Resources

Sirohi, Kshitiz. 2018. "Simply Explained Logistic Regression with Example in R." *Towards Data Science*, December 24. <https://towardsdatascience.com/simply-explained-logistic-regression-with-example-in-r-b919acb1d6b3>.

2022-10-18

### Assignments

In-class Assignment 5 (due 3:00 PM)  
Lab Assignment 2 (due 11:59 PM)  
Midterm check-in survey (due 11:59 PM)

### Lab

Finish Lab Assignment 2

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## Week 6: Spatial Analysis

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### Required Readings

Thompson, Sara K., and Rosemary Gartner. 2014. "The Spatial Distribution and Social Context of Homicide in Toronto's Neighborhoods." *Journal of Research in Crime and Delinquency* 51(1):88-118.

2022-10-25

### Methods Resources

Lovelace, Robin, Jakub Nowosad, and Jannes Muenchow. 2021. "Geographic Data in R." In *Geocomputation with R*. CRC Press. <https://geocompr.robinlovelace.net/>.

### Assignments

In-class Assignment 6 (due 3:00 PM)

### Lab

Begin Lab Assignment 3

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## Week 7: Spatial Analysis

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### Methods Resources

Lovelace, Robin, Jakub Nowosad, and Jannes Muenchow. 2021. "Making Maps in R." In *Geocomputation with R*. CRC Press. <https://geocompr.robinlovelace.net/>.

2022-11-01

### Assignments

In-class Assignment 7 (due 3:00 PM)

Lab Assignment 3 (due 11:59 PM)

### Lab

Finish Lab Assignment 3

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## Week 8: Network Analysis

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### Required Reading

Morselli, Carlo. 2009. "Case Study Sources and Designs." Pp. 23-50 in *Inside Criminal Networks*. New York: Springer.

### Methods Resources

Bojanowski, Michal, and Lorien Jasny. 2021. "Introduction to Network Analysis Tools in R." Sunbelt-NetSci. <http://statnet.org/Workshops/intro-sna-tools/>.  
[Sections 1-4]

2022-11-08

### Assignments

In-class Assignment 8 (due 3:00 PM)

### Lab

Begin Lab Assignment 4

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## Week 9: Network Analysis

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### Methods Resources

Bojanowski, Michal, and Lorien Jasny. 2021. "Introduction to Network Analysis Tools in R." Sunbelt-NetSci. <http://statnet.org/Workshops/intro-sna-tools/>.  
[Sections 5-6]

2022-11-15

### Assignments

In-class Assignment 9 (due 3:00 PM)  
Lab Assignment 4 (due 11:59 PM)

### Lab

Finish Lab Assignment 4

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## Week 10: Research Proposals

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### Required Reading

Yellin, Linda L. 2009. "Writing a Quantitative Research Paper." Pp. 112-37 in *A Sociology Writer's Guide*. Boston, MA: Pearson Education, Inc.

2022-11-22

### Assignments

In-class assignment 10 Research Proposal (due 3:00 PM)

### Lab

Finish Research Proposals meetings

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## Week 11: Final Projects

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2022-11-29

**Final Project consultations**

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## Week 12: Final Projects

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2022-12-06

### Assignments

Final Projects (due 1:00 PM)  
In-class Assignment 12 (due 3:00 PM)

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Last Date to drop course from Academic Record and GPA is [November 16, 2022](#).

Every attempt will be made to follow this schedule, but it is subject to change at the discretion of the instructor.

## Student Services & Resources

### **Accessibility**

The University provides academic accommodations for students with disabilities in accordance with the terms of the Ontario Human Rights Code, including those who have a physical, sensory, or learning disability, mental health condition, acquired brain injury, or chronic health condition, be it visible or hidden.

If you have a disability or health consideration that may require accommodations, please approach Accessibility Services as soon as possible. The Accessibility staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations. The sooner you let us know your needs, the quicker we can assist you in achieving your learning goals in this course.

To register with Accessibility, please call the Centre at 905-569-4699 or e-mail [access.utm@utoronto.ca](mailto:access.utm@utoronto.ca).  
<http://www.utm.utoronto.ca/access>

### **Robert Gillespie Academic Skills Centre**

The Centre offers wide-ranging support to help students identify and develop the academic skills they need for success in their studies, including: understanding learning styles; essay and report writing; time management; lecture-listening; note-taking; and studying for tests and exams.

<http://www.utm.utoronto.ca/asc/>

### **UTM Library (Hazel McCallion Academic Learning Centre)**

The UTM Library provides access to a vast collection of online and print resources to faculty, staff, and students. Various services are available to students, including borrowing, interlibrary loans, online references, research help, laptop loans and the RBC Learning Commons.

<http://library.utm.utoronto.ca>

A variety of other student support services and resources can be found at <http://www.utm.utoronto.ca/current-students>, including academics, health, wellness, and student services.

## Equity & Diversity

The University of Toronto is committed to equity and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect. As a course instructor, I will neither condone nor tolerate behaviour that undermines the dignity or self-esteem of any individual in this course and wish to be alerted to any attempt to create an intimidating or hostile environment. It is our collective responsibility to create a space that is inclusive and welcomes discussion. Discrimination, harassment, and hate speech will not be tolerated. If you have any questions, comments, or concerns you may contact the UTM Equity and Diversity officer at [edo.utm@utoronto.ca](mailto:edo.utm@utoronto.ca) or the University of Toronto Mississauga Students' Union Vice President Equity at [ypequity@utmsu.ca](mailto:ypequity@utmsu.ca).