

SOC252H1 F

Intermediate Quantitative Methods in Sociology

Fall 2024 Syllabus

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Course Meetings Details

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Section	Day & Time	Delivery Mode & Location
LEC0101	Tuesday, 3:00 PM - 5:00 PM	In Person: SS 2125
TUT0101	Thursday, 11:00 AM - 1:00 PM	In Person: UY 17198
TUT0201	Thursday, 3:00 PM - 5:00 PM	In Person: UY 17198

Refer to ACORN for the most up-to-date information about the location of the course meetings.

Course Contacts

Course Website: <https://q.utoronto.ca/courses/353646>

Instructor: Aida Parnia

Email: a.parnia@utoronto.ca

Office Hours and Location: In-person or Online, Friday 11-12 PM. At Room 17194, 700 University Ave, 17th floor.

Additional Notes: Please allow 24 hours for responses to your emails within the regular working days (i.e. no responses on the weekends). Please include the course code in the subject line of the email.

TA: TBD

Course Overview

Quantitative data analysis is one of the primary scientific tools for learning about the world around us. With increasing data generated and collected about our social world, skilled analysis and interpretation of quantitative data have become increasingly necessary. This course will build on the foundational concepts in statistics and research methods to develop the following core skills in students:

1. Gaining intermediate knowledge of statistical concepts and theories underlying studies in social sciences.
2. Learning to code and analyze data using the R statistical software program.
3. An Introductory understanding of causal inference in social sciences.

Prerequisites: SOC202H1

Corequisites: None

Exclusions: SOC300H1, ECO220Y1, PSY202H1, STA221H1

Recommended Preparation: SOC150H1

Credit Value: 0.5

Quercus Info

This Course uses the University's learning management system, Quercus, to post information about the course. This includes posting readings and other materials required to complete class activities and course assignments, as well as sharing important announcements and updates. New information and resources will be posted regularly as we move through the term. To access the course website, go to the U of T Quercus log-in page at <https://q.utoronto.ca>.

Online Communication

Students are required to use their mail.utoronto.ca email addresses for all course-related communications, and they are expected to check this address regularly. University of Toronto email accounts are more secure, and are also governed by the institution's codes of conduct, meaning that the University has recourse to address any inappropriate communications (e.g., racist, aggressive, threatening, harassing, etc.) between students and other students as well as

with the instructor. For these reasons, the instructor will only respond to emails received from a mail.utoronto.ca account.

Please do not use the Quercus built-in "inbox" tool as the communication through that tool is not checked regularly. Do not reply to the Note that Quercus has a built-in communication tool, called "Inbox". This is not the same as email. Furthermore, Please do not reply to any Quercus system notifications they receive through email; messages with attachments included in replies to these system notification messages are not sent to the instructor.

In short, please use your university email address.

Texts

Many free resources are available to learn R. While there are no mandatory textbooks, it is highly recommended that you consult these sources. Other readings and resources will be provided throughout the semester.

1. Hadley Wickham, Mine Çetinkaya-Rundel, and Garrett Golemund. R for Data Science (2e). Available here: <https://r4ds.hadley.nz/>
2. Gelman A, Hill J, Vehtari A. Regression and other stories. Cambridge University Press; 2021.
3. Alexander R. Telling Stories with Data. Chapman & Hall; 2023.
<https://tellingstorieswithdata.com/>

Software

As part of this course, we will use R statistical software. R can be used through the interface of R Studio, which allows for a more user-friendly programming experience. R and R Studio can be downloaded to your personal computer. A cloud version of R Studio can be used for this course through U of T's JupyterHub, where you can log into R Studio using your UTORid: <https://datatools.utoronto.ca/>

Link to download R: <https://cran.rstudio.com/>

Link to download R Studio: <https://posit.co/download/rstudio-desktop/>

Link to access R Studio in your browser: <https://datatools.utoronto.ca/>

Tutorials

The tutorials for this class feature content for completing this course's assignments and research projects, including teaching how to use R statistical software and approach quantitative data as a researcher. The details for each tutorial session are provided in the class schedule.

Evaluation Scheme and Methods

Assessment	Percent	Due Date	Details
Lab Assignment 1	15%	2024-09-27	There will be three lab assignments throughout the semester. Each will challenge students to conduct quantitative analysis and interpret the findings. The dates for these assignments are provided in the class schedule below. These assignments are designed to be completed individually and submitted electronically via Quercus. Late assignments will be treated following the late work policy described in this syllabus.
Lab Assignment 2	15%	2024-10-11	
Lab Assignment 3	15%	2024-10-25	
In-Class midterm test	20%	2024-11-12	The midterm test will be held during class time on November 12th. It will cover all the materials covered in the course. The midterm tests the student's understanding of the course material and critical thinking around quantitative methods. It will not test the student's skills in coding or programming with R or any other statistical software.
Research Proposal	5%	2024-11-08	The proposal is a maximum of two pages (double-spaced) describing the research question, justification for the question, the data source, the data description, and the statistical method to be used. A good proposal requires students to do some exploratory data analysis.
Research Presentation	10%	2024-11-19	The presentation is an opportunity for feedback on the research project before the final paper. It will include the introduction, research questions, methods, findings, and conclusions. These presentations are similar to conference presentations and will be held during class.
Research Paper	20%	2024-12-13	The final research paper is based on the two prior components and can include text already submitted as part of the proposal. The paper is no longer than 2000 words (excluding abstract, tables, figures, and references). This research paper will include a title page, abstract, introduction, methods, results, and conclusion. More details and a template will be provided.

Research Project

In this course, you will be able to formulate a research question and conduct statistical analysis using publicly available data. The students will present their work in three stages: a research proposal, a presentation during class time, and a research paper. Specific guidance for each component will be provided. The research project can be done in groups of a maximum of three students or individually.

Assignment Submission Method

The assignments for this course are submitted online via the course website (Quercus). For the assignments, please submit a pdf or Word (.doc or .docx) along with the code used in R studio. The code needs to be amended for each output or answer provided. Amending codes to the outputs can be done in 2 ways:

1. Draft your assignment using Quarto or R Markdown, generate a PDF, and submit both the PDF and the Quarto/R Markdown file.
2. Draft the assignment using a word processor and copy-paste/screenshot of the code that produces the output in the document, with clear labels and notes explaining the code. Alongside the final document, also attach the entire code in an R script.

Late/Missed Assignments or Tests

Students who miss a paper deadline or a test will receive a mark of zero for that paper or test unless the reason is a circumstance beyond their control. First, students must send the instructor a request for consideration **before and, at the latest, three days after** missing a paper deadline or test. Second, students must document their request with **one of the following**:

- Absence declaration via ACORN
- U of T Verification of Illness or Injury Form
- College Registrar's letter (e.g., in case of personal/family crisis or emergency)
- Letter of Academic Accommodation from Accessibility Services

Students who miss the test or are late in submitting an assignment for other reasons, such as family or other personal reasons, should request their College Registrar to email the instructor.

Policies & Statements

Students with Disabilities or Accommodation Requirements

Students with diverse learning styles and needs are welcome in this course. If you have an acute or ongoing disability issue or accommodation need, you should register with Accessibility Services (AS) at the beginning of the academic year by visiting <https://studentlife.utoronto.ca/departments/accessibility-services/>. Without registration, you will not be able to verify your situation with your instructors, and instructors will not be advised about your accommodation needs. AS will assess your situation, develop an accommodation plan with

you, and support you in requesting accommodation for your course work. Remember that the process of accommodation is private: AS will not share details of your needs or condition with any instructor, and your instructors will not reveal that you are registered with AS.

Accommodation for Personal Reasons

There may be times when you are unable to complete course work on time due to non-medical reasons. If you have concerns, speak to your instructor or to an advisor in your College Registrar's office; they can help you to decide if you want to request an extension or other forms of academic consideration. They may be able to email your instructors directly to provide a College Registrar's letter of support and connect you with other helpful resources on campus.

Academic Integrity

All suspected cases of academic dishonesty will be investigated following procedures outlined in the [Code of Behaviour on Academic Matters \(https://governingcouncil.utoronto.ca/secretariat/policies/code-behaviour-academic-matters-july-1-2019\)](https://governingcouncil.utoronto.ca/secretariat/policies/code-behaviour-academic-matters-july-1-2019). If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, please reach out to me. Note that you are expected to seek out additional information on academic integrity from me or from other institutional resources. For example, to learn more about how to cite and use source material appropriately and for other writing support, see the U of T writing support website at <http://www.writing.utoronto.ca>. Consult the Code of Behaviour on Academic Matters for a complete outline of the University's policy and expectations. For more information, please see [A&S Student Academic Integrity \(https://www.artsci.utoronto.ca/current/academic-advising-and-support/student-academic-integrity\)](https://www.artsci.utoronto.ca/current/academic-advising-and-support/student-academic-integrity) and the [University of Toronto Website on Academic Integrity \(https://www.academicintegrity.utoronto.ca\)](https://www.academicintegrity.utoronto.ca).

Plagiarism Detection Tools

Students agree that by taking this course, all required papers may be subject to submission for textual similarity review to Turnitin.com for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com website.

Assignments not submitted through Turnitin will receive a grade of zero (0 %), unless a student instead provides, along with their position paper, sufficient secondary material (e.g., reading notes, outlines of the paper, rough drafts of the final draft, etc.) to establish that the paper they submit is truly their own. The alternative (not submitting via Turnitin) is in place because, strictly speaking, using Turnitin is voluntary for students at the University of Toronto.

Use of Generative AI Tools

Students may choose to use generative artificial intelligence tools as they work through the assignments in this course; this use must be documented in an appendix for each assignment. The documentation should include what tool(s) were used, how they were used, and how the results from the AI were incorporated into the submitted work. For this course's purposes,

relying on the R code provided by generative AI tools is not recommended. Try to understand the R code provided for the course and adapt it for the purposes of the assignments.

Course Schedule

DATE	LECTURE TOPIC (TUESDAYS)	TUTORIAL TOPIC (THURSDAYS)	ASSIGNMENT	READINGS
Wk 1 03-Sep	Introduction and course plan	No tutorial	-	Babone 2016
Wk 2 10-Sep	Types of measurements: central tendency and variation	Intro to R and Tidyverse	-	ROS CHAPTER 1 AND 2; R TEXTBOOK CHAPTER 2 TO 4
Wk 3 17-Sep	Probability theory	Exploratory data analysis	-	ROS CHAPTER 3 R TEXTBOOK CHAPTER 2 TO 4
Wk 4 24-Sep	Sample, population, hypothesis tests	Visualization part 1	Lab 1	ROS CHAPTER 4
Wk 5 01-Oct	Regressions: linear - log transformation	Linear regression	-	ROSPART 2 (ELEMENTS FROM EACH CHAPTER)
Wk 6 08-Oct	Regressions: logistic and generalized linear models	Logistic regression	Lab 2	ROSC HAPTER 13
Wk 7 15-Oct	Research designs	Visualization part 2	-	
Wk 8 22-Oct	Directed acyclic graphs and causal inference	Marginal effects	Lab 3	ROS CHAPTER 8
Wk 9 29-Oct	READING WEEK			
Wk 10 05-Nov	Sources of bias and critical evaluation	R markdown/quarto	-	Morales ET AL 2017
Wk 11 12-Nov	Midterm	No tutorial	Proposal	
Wk 12 19-Nov	Presenting quantitative research and course review	Review	-	
Wk 13 26-Nov	Presentations / last class	Review / drop-in time	Presentations	
Final Wk 13-Dec	RESEARCH PAPER DUE			

Resources

Recognized Study Group (RSG) for this course

[Apply now to be an RSG Leader for this course](#). RSGs are peer-led study groups of up to 8 students enrolled in the same A&S course.

Volunteering to be an RSG Leader is a great way to:

- Meet classmates and make friends in this course
- Gain new leadership and group-facilitation skills
- Increase your understanding of course material
- Prepare for test and exams
- Boost your resume
- Earn a Co-Curricular Record (CCR) credit

Over 1000 students volunteered to be an RSG Leader last year and over 3500 students joined an RSG! Volunteer to be an RSG Leader this term with the support and training of upper-year A&S students! No experience is necessary.

[Sign up to be an RSG Leader now.](#)

Looking to join an RSG? [Explore all available RSGs on the Arts & Sciences Online Services](#). New RSGs are added daily!

Find more information, visit: uoft.me/rsgs or [@sidneysmithcommons](https://twitter.com/sidneysmithcommons)

Mental Health and Well-Being

Your mental health is important. Throughout university life, there are many experiences that can impact your mental health and well-being. As a University of Toronto student, you can access free mental health and wellbeing services at Health & Wellness (<https://studentlife.utoronto.ca/department/health-wellness/>) such as same day counselling, brief counselling, medical care, skill-building workshops, and drop-in peer support. You can also meet with a Wellness Navigation Advisor who can connect you with other campus and community services and support. Call the mental health clinic at 416-978-8030 ext. 5 to book an appointment or visit <https://uoft.me/mentalhealthcare> to learn about the services available to you.

You can also visit your College Registrar to learn about the resources and supports available: <https://www.artsci.utoronto.ca/current/academic-advising-and-support/college-registrars-offices>

If you're in distress, you can access immediate support: <https://uoft.me/feelingdistressed>