

SOC202H1F – LEC0101
FALL 2023
Introduction to Quantitative Methods in Sociology
University of Toronto
Class hours: Mondays 15:10 – 17:00

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Statement of Acknowledgement

We acknowledge this sacred land on which the University of Toronto operates. It has been a site of human activity for 15,000 years. This land is the territory of the Huron Wendat and Petun First Nations, the Seneca, and most recently, the Mississaugas of the Credit River. The territory was the subject of the Dish With One Spoon Wampum Belt Covenant, an agreement between the Iroquois Confederacy and Confederacy of the Ojibwe and allied nations to peaceably share and care for the resources around the Great Lakes. Today, the meeting place of Toronto is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work in the community, on this territory. [*Council of Aboriginal Initiatives, 2014*]

Course Description

This course is designed to introduce statistical methods to students majoring in sociology. The class focuses on fundamental statistical concepts and on the application of basic statistical techniques. We will start by introducing the building blocks of statistics: variables, levels of measurement, and probability distributions. We will then learn how to use quantitative data from samples to estimate characteristics of populations, test whether the estimates differ across subpopulations, and make inferences about relationships between two or more observed variables.

Prerequisites: SOC100H1+ SOC150H1

Recommended Preparation: SOC150H1

Learning outcomes

By the end of this course, you will be able to:

- (1) Use professional tools for data analysis such as RStudio
- (2) Summarize and visualize data
- (3) Interpret regression models and quantitative claims
- (4) Understand key statistical concepts

Evaluation Components

Type	Due Dates	Weight
Homework	Ongoing	25%
Midterm	October 23	25%
Final test	December 7	25%
Research poster	December 14	25%

Grading Descriptions

Homework assignments (10 x 2.5% = 25%)

To reinforce course material, students will be required to complete weekly homework assignments. The homework assignments will be assigned at the end of lectures; direct support and guidance will be provided during the tutorial; and they will need to be completed by the following lecture. For example, homework 3 will be assigned at the end of the lecture of Sept. 18th, worked on during the tutorial on Sept. 20th, and due by the beginning of the lecture on Sept. 25th. No homework will be assigned during the week of the midterm. For the full schedule, see page 6.

Midterm and Final Test (2x 25%)

There will be a midterm and a final examination of course material. The exams are non-cumulative. You will have the entire 1h 50 minutes to complete the exam and can bring a single note sheet. Both exams will be held in class and consist of a series of short-answer questions. The midterm will be on October 23rd and the final will be on December 7th. The exams are designed to test your comprehension and evaluation of statistical claims, concepts, measures, and visuals.

Research Poster (25%)

The research poster project (due on Dec. 14) will be your opportunity to get your hands dirty doing original sociological research, while using R. You will use a dataset used in-class and test social science techniques to answer a research question. The poster will share the results in a well-designed visual display of the data and text describing research findings and analysis. You will have the option to work with one or two partners on this project.

Course Policies and Student Responsibilities

Email Policy

I will respond to your email within two business days (48 hours, except weekends and holidays). In an email exchanges, you must use your official University of Toronto email. Please also include the course code (e.g., SOC202) in the subject line.

In general, please treat emails as you would any other professional communication. You should be respectful in the way you address the instructor and the TA. Email is most suitable for questions that are clear, concise, and easily answerable. If you need help on course material, I strongly encourage you to attend office hours or make an appointment. For all general inquiries, please refer to the course syllabus.

Help from your Teaching Assistant

Your T.A. will hold scheduled office hours and respond to your emails. Please be judicious in your use of email. Use it only for questions that are brief and specific. Before sending a question by email, be sure to check the course outline to see if an answer is already available. Emails should not be seen as an alternative to doing the assigned reading or attending lectures. Expect to receive a response from your T.A. within two working days. For more in-depth discussions, take advantage of your T.A.'s office hours.

Accessibility

If you require accommodations or have any accessibility concerns, please visit <http://studentlife.utoronto.ca/accessibility> as soon as possible.

Missed tests and assignments

If a student misses the midterm test or submit assignments later for medical reasons, the student must contact me (not the TA) within 1 day of the missed exam or assignment and also declare their absence on ACORN. For other reasons, such as family emergencies or personal reasons, they must have the college registrar email me

Grade Appeals

The instructor and teaching assistants do their best to mark work fairly, consistently, and accurately. Nevertheless, one of us may unintentionally err in our marking duties. For basic mathematical errors, simply alert the TA of the error. In the case of more substantive appeals, you must wait at least 24 hours after receiving your mark. If you wish to appeal, please submit a thorough written explanation to your instructor of why you think your mark should be altered. If your appeal is deemed appropriate, the entirety of your assignment will be re-graded. Please note that upon re-grade your mark may go down, stay the same, or go up. You have 7 days after receiving a mark to appeal it.

Academic Integrity

Academic integrity is fundamental to learning and scholarship at the University of Toronto. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that the U of T degree that you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

Familiarize yourself with the University of Toronto's Code of Behaviour on Academic Matters (<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>). It is the rule book for academic behaviour at the U of T, and you are expected to know the rules.

The University of Toronto treats cases of academic misconduct very seriously. All suspected cases of academic dishonesty will be investigated following the procedures outlined in the Code. The consequences for academic misconduct can be severe, including a failure in the course and a notation on your transcript. If you have any questions about what is or is not permitted in this course, please do not hesitate to contact me. If you have questions about appropriate research and citation methods, seek out additional information from me, or from other available campus resources like the [U of T Writing Website](#). If you are experiencing personal challenges that are having an impact on your academic work, please speak to me or seek the advice of your college registrar.

Generative Artificial Intelligence

Students are encouraged to make use of technology, including generative artificial intelligence tools, to contribute to their understanding of course materials. Students may use artificial intelligence tools, including generative AI, in this course as learning aids or to help produce assignments. However, students are ultimately accountable for the work they submit.

If using generative artificial intelligence tools as they work through the term assignment in this course, students must document this in an appendix. 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.

Ouriginal

Sometimes, students will be required to submit their assignments to the University's plagiarism detection tool for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the tool's reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of this tool are described on the Centre for Teaching Support & Innovation web site (<https://uoft.me/pdt-faq>).

For some of your assignments, we will be using the software Ouriginal. It uses text matching technology as a method to uphold the University's high academic integrity standards to detect any potential plagiarism. Ouriginal is integrated into Quercus. For the assignments set up to use Ouriginal, the software will review your paper when you upload it to Quercus. To learn more about Ouriginal's privacy policy please review its [Privacy Policy](#).

Students not wishing their assignment to be submitted through Ouriginal will not be assessed unless a student instead provides, along with their work, 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.

Academic Integrity Clause

Copying, plagiarizing, falsifying medical certificates, or other forms of academic misconduct will not be tolerated. Any student caught engaging in such activities will be referred to the Dean's office for adjudication. Any student abetting or otherwise assisting in such misconduct will also be subject to academic penalties.

Students are expected to cite sources in all written work and presentations. See this link for tips for how to use sources well:

(<http://www.writing.utoronto.ca/advice/using-sources/how-not-to-plagiarize>).

According to Section B.I.1.(e) of the Code of Behaviour on Academic Matters it is an offence "to submit, without the knowledge and approval of the instructor to whom it is submitted, any academic work for which credit has previously been obtained or is being sought in another course or program of study in the University or elsewhere."

By enrolling in this course, you agree to abide by the university's rules regarding academic conduct, as outlined in the Calendar. You are expected to be familiar with the Code of Behaviour on Academic Matters

(<http://www.artsci.utoronto.ca/osai/The-rules/code/the-code-of-behaviour-onacademic-matters>) and Code of Student Conduct (<http://www.viceprovoststudents.utoronto.ca/publicationsandpolicies/codeofstudentconduct.htm>) which spell out your rights, your duties and provide all the details on grading regulations and academic offences at the University of Toronto.

Equity and 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.

Additional information and reports on Equity and Diversity at the University of Toronto is available at <http://equity.hrandequity.utoronto.ca>.

Schedule, Readings, and Tutorials

Tutorials

This course has weekly tutorials on Wednesdays, with four different sections, all held in UY17198 during the following times:

- Section 1. between 930-1100 am (TUT0101)
- Section 2. between 1-230 pm (TUT0201)
- Section 3. between 3-430 pm (TUT0301)
- Section 4. between 430-600 pm (TUT0701)

The tutorials are designed to provide instruction in the application of methods covered in lecture using the statistical software package R. Each will involve working through an applied analysis of data as part of your homework assignments with the guidance of a teaching assistant.

Software

All statistical computing for this course will be done using R (<https://www.rproject.org/about.html>).

R is a statistical programming language, and computations are executed from a set of typed commands. The best way to use R is through RStudio, an editor which allows you to better see your code, directory and output.

Both R and RStudio are free to download to your own personal computer

1. Download R here: <https://cran.rstudio.com/>
2. Download RStudio here (free version) <https://posit.co/download/rstudio-desktop/>

Required readings and texts

All required resources are freely accessible:

OS: *Open Intro Statistics*, 4th Edition by David Diez, Mine Çetinkaya-Rundel, and Christopher Barr (available here: <https://www.openintro.org/book/os/>)

TSWD: *Telling Stories with Data* by Rohan Alexander (available here: <https://tellingstorieswithdata.com/>)

ROS: *Regression and Other Stories* by Andrew Gelman, Jennifer Hill and Aki Vehtari (available here: <https://avehtari.github.io/ROS-Examples/#Contents>)

Other recommended resources

R for Data Science (see here: <https://r4ds.hadley.nz/>)

Statistical Inference via Data Science: A Modern Dive into R and the Tidyverse (available here: <https://moderndive.com/>)

Data Visualization (see here: <https://socviz.co/index.html#preface>)

Detailed schedule

Session & Date	Topic	Readings	Assessment
1. September 11	Intro to course and data	TSWD Ch 1, Ch 2 ROS Ch 2	Homework 1 (2.5%)
2. September 18	EDA: Describing and visualizing	OS Ch 2 TSWD Ch 11	Homework 2 (2.5%)
3. September 25	FI: Probability and proportions	OS Ch 2, Ch 3 ROS Ch 3	Homework 3 (2.5%)
4. October 2	FI: Sampling and distributions	OS Ch 4	Homework 4 (2.5%)
THANKSGIVING			
5. October 16	FI: Likelihood and uncertainty	ROS Ch 4 OS Ch 5	Homework 5 (2.5%)
6. October 23	Midterm		Midterm (25%)
7. October 30	Hypothesis testing and inference	OS Ch 6, Ch 7	Homework 6 (2.5%)
READING WEEK			
8. November 13	Modeling: Correlation and comparisons	ROS Ch 6	Homework 7 (2.5%)
9. November 20	Modeling: Linear regression	OS Ch 8 ROS Ch 7	Homework 8 (2.5%)
10. November 27	Modeling: Multiple linear regression	OS Ch 9 ROS Ch 10	Homework 9 (2.5%)
11. December 4	Modeling: Logistic regression and interactions	ROS Ch 13, 14	Homework 10 (2.5%)
12. December 7 December 14	Final test		Final (25%) Research poster (25%)