

SOC6302H Stats for Sociologists (Fall 2022)

Instructor: Prof. Ethan Fosse (pronouns: he/him)

Lecture and Location: Wednesdays (11 am - 1 pm), Room 240 (at 725 Spadina)

Lab: Tuesdays (1 pm - 2 pm), Room 36 (at 725 Spadina)

Offi Hours and Location: By appointment, Room 348 (725 Spadina)

Instructor Email: ethan.fosse@utoronto.ca

1 Course Description & Goals

This course introduces the basic concepts of data analysis and statistical computing, both increasingly used in sociology and related fields. The emphasis is on the practical application of quantitative reasoning, visualization, and data analysis. The goal is to provide students pragmatic tools for assessing statistical claims and conducting their own basic statistical analyses. Topics covered include basic descriptive measures, measures of association, sampling and sample size estimation, and linear regression. Assignments are based on real-world data and problems in a wide range of sociological subfields.

2 Course Resources

Quercus Website: The course website will have additional information on the course mechanics, lecture materials, and readings. Note that all assignments will be submitted entirely through course website, which will be updated as the course begins. The course website may be accessed via the University of Toronto's [Quercus platform](#).

Weekly Readings: There are two required textbooks for the course, one for learning statistical concepts and another for learning how to use statistical software:

1. For learning statistical concepts, the required textbook is *OpenIntro Statistics, 4th Edition* by David M. Dietz, Christopher D. Barr, and Mine Cetinkaya-Rundel published in 2019. It is available online for free as a pdf (or for a relatively modest price from various booksellers): <https://www.openintro.org/book/os/>
2. For learning statistical software, the required textbook is *A Student's Guide to R* by Nicholas J. Horton, Daniel T. Kaplan, and Randall Pruim. It is available on the course website for free as a pdf or online via this link: https://cran.r-project.org/doc/contrib/Horton+Pruim+Kaplan_MOSAIC-StudentGuide.pdf

This course also includes various supplementary readings. The supplementary weekly readings are not necessary for succeeding in this course and are offered only to give you deeper insight on particular topics and techniques. All supplementary readings will be posted on the course website.

Statistical Software: This course is focused primarily on helping you learn basic statistical concepts. However, learning statistical concepts is generally aided by analyzing data using statistical software. Because of its popularity and applicability, this course will focus on using R with RStudio. R is the underlying programming language, while RStudio is a graphical user interface (GUI) that makes working with R much easier. Both are free, open-source, and used widely by statisticians. To install R with RStudio, go to the following link and click on the installer for your computer's operational system: <https://www.rstudio.com/products/rstudio/download/> More information about installing R will be available in the Orientation module on the course website at the start of the semester.

3 Evaluation Components

Fall students, your grade will be based on the following:

1. **Participation:** You must not only attend but actively participate in class discussions and labs throughout course. Class participation is worth 15% of your overall grade.
2. **Missions:** Missions (or “problem sets”) are assigned and submitted online through the course website. Details on the problem sets will be published on the course website as the semester starts. Late problem sets are not accepted for any reason. Working with other students on the problem sets is allowed and encouraged but only as long as you hand in your own work and do not simply copy the work of someone else. For these missions, you will be graded on whether or not you have written the correct answer. Missions are worth 30% of your overall grade.
3. **Final Exam:** There will be one final exam at the end of the semester. The exam will last 2 hours and will be offered online on the course website during a specified time period over several days. You will not need a proctor to take the online exams. Each exam will consist of three parts: first, a set of multiple choice questions; second, a set of questions in which you will be asked to enter a numerical answer; and third, a small set of questions that require you to critically evaluate the interpretation of statistical analyses. The exams are “open book” in that you can use any textbook, notes, problem sets, or lecture slides to help you answer the questions. The exams are designed to test your knowledge of basic statistical concepts, not your ability to use R. To the extent R will be tested, you will only be asked to interpret standard statistical output in the form of tables and graphs. The final exam is worth 20% of your overall grade.
4. **Final Project:** The final project will consist of a paper (no more than 10 pages) describing the analysis of a dataset using one the methods discussed in the course. You may use one of the datasets used in the course or another dataset. The final project will be submitted online through the course website. Details on the final project will be given near the beginning of the semester. The final project is worth 35% of your overall grade.

Instructions on Submitting Papers: All papers must be submitted via the course website. **Only Adobe pdf documents will be allowed.** Papers should be written

using standard 12 point font, double spacing, and without a separate title page. All works should be referenced using American Sociological Association (ASA) style.

Late Penalty: Unless there is a documented reason beyond one's control (e.g., an illness or emergency), there will be a 5% deduction for each day the assignment is late.

4 Academic Integrity

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 effectively.

According to Section B.I.1.(e) of the Code of Behaviour on Academic Matters it is an offense "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. You are expected to be familiar with the [Code of Behaviour on Academic Matters](#) and [Code of Student Conduct](#), which spell out your rights and provide all relevant details on academic responsibilities at the University of Toronto.

5 Accessibility Services

It is the University of Toronto's stated goal to create a community that is inclusive of all persons and treats all members of the community in an equitable manner. In creating such a community, the University aims to foster a climate of understanding and mutual respect for the dignity and worth of all persons. Please see the University of Toronto Governing Council's [Statement of Commitment Regarding Persons with Disabilities](#). In working toward this goal, the University has committed to supporting and facilitating the accommodation of individuals with disabilities so that all may share the same level of access to opportunities, participate in the full range of activities that the University offers, and achieve their full potential as members of the community.

Students seeking support must have an interview with a disability adviser to discuss their individual needs. In many instances it is easier to arrange certain accommodations with advance notice, so you are strongly encouraged to act as quickly as possible. To schedule a registration appointment with a disability adviser, please visit [Accessibility Services](#) or call 416-978-8060. The office is located at 455 Spadina Avenue, 4th Floor, Suite 400. Additional student resources for distressed or emergency situations can be found [here](#). You may also contact the [Health & Wellness Centre](#) at 416-978-8030 or Student Crisis Response at 416-946-7111.

6 Equity and Diversity

The University of Toronto has a public commitment 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 the course instructor, I will neither condone nor tolerate behavior 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 of any kind will not be tolerated. Additional information on Equity and Diversity at the University of Toronto is available [here](#).

7 Land Acknowledgment

The land on which we gather is the traditional territory of the Wendat, Anishinabek (ah-nish-nah-bek) Nation, the Haudenosaunee (ho-den-oh-sho-nee) Confederacy, the Mississaugas of Scugog (skoo-gog), Hiawatha (hi-ah-wah-tha), and Alderville First Nations and the Métis (may-tee) Nation. This territory was the subject of the Dish With One Spoon Wampum Belt Covenant, an agreement between the Iroquois Confederacy and the Ojibwe and allied nations to peaceably share and care for the resources around the Great Lakes 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.

8 Tentative Course Schedule

The **tentative** course schedule is show in the following table. It is subject to change as the semester begins. The due dates for problem sets, assigned textbook readings, and lecture topics are subject to change. In the table below, OI refers to *OpenIntro Statistics* while SG refers to the *Student's Guide to R*.

Date	Lecture Topic	Textbook Readings	Assignment Due
9/14	Module 1: Introduction to Data	OI: Ch. 1: Pp. 9-25 SG: Pp. 5-7, 11-12; Ch. 1: Pp. 13-14; Ch. 2: Pp. 15-16, 20-25	None
9/21	Module 2: Categorical Data	OI: Ch. 1: Pp. 61-66 SG: Ch. 4: Pg. 39 only; Ch. 6: Pp. 55, 57	None
9/28	Module 3: Numerical Data	OI: Ch. 1: Pp. 42-51 SG: Ch. 3: Pp. 27-34	Mission #1
10/5	Module 4: Probability Tables and Relative Risk	OI: Ch. 2: Pp. 79-108 SG: Re-read Ch. 6: Pp. 55, 57	Mission #2
10/12	Module 5: Correlation Analysis	OI: Ch. 1: Pp. 41-42; Ch. 8: Pp. 310-316 SG: Ch. 5: Pp. 45-46	Mission #3
10/19	Module 6: Linear Regression	OI: Ch. 8: Pp. 305-310, 317-323; 328-329 SG: Ch. 5: Pp. 47-48	Mission #4
10/26	Modules 7 & 8: Basics of Sampling and the Sampling Distribution	OI: Ch.1: Pp. 25-28; Ch. 4: Pp. 133-141; Ch. 5: Pp. 170-180; Pp. 181-186 SG: Ch. 3: Pg. 35	Mission #5
11/3	Module 9: Tests for Means	OI: Ch.7: Pp. 251-261; 267-273 SG: Ch. 3, Pp. 36-37	Mission #6
11/10	Module 10: Tests for Proportions	OI: Ch. 6: Pp. 208-228 SG: Ch. 4: Pp. 41-42	Mission #7
11/17	Module 11: Tests for Contingency Tables	OI: Ch. 6: Pp. 229-244 SG: Ch. 4: Pp. 42-44; Ch. 10: Pp. 75-76	Mission #8
11/24	Module 12: Inferences for Correlation and Linear Regression	OI: Ch. 8: Pp. 331-334 SG: Re-read Ch. 5: Pp. 47-48	Mission #9
12/01	Module 13: Course Review	None	None
12/10-12/15	Final Exam	None	Final Project (Due on December 20)