Department of Sociology | University of Toronto | Fall 2018

Quantitative Analysis in Social Science Research

SOC202H1F (LEC5101)
Instructor: Irene Boeckmann, PhD

What This Course Is About

This class introduces you to basic statistical techniques for analyzing data. These techniques are one of the tools sociologists and other social scientists use to answer questions about the social world. The course focuses on understanding and applying statistical techniques, and on how to communicate statistical findings effectively. The skills and techniques that you learn in this class are used in a wide variety of other classes and provide the background for many professional problems you may be confronted with. We will cover descriptive statistics, and basic inferential statistical techniques, including regression analysis. Furthermore, you will get hands-on experience using the statistical software SPSS to analyze quantitative data. This is a software package that is used in a wide variety of professional setting including many workplaces in the private and non-profit sector.

Course Goals

1. Introduce you to basic statistical techniques, both descriptive and inferential
2. Develop your ability to interpret and write about statistical results
3. Develop your skills to analyze data with SPSS effectively
4. Provide you with experience in working with real world data

Teaching Team

Instructor: Irene Boeckmann
Email: irene.boeckmann@utoronto.ca
Office: Rm 338, 725 Spadina Ave
Office hours: Wed 10 a.m. - noon
(midterm weeks: Mon 3.30-5 p.m.)

TAs: TBA
Email: TBA
Office hours: TBA

Prerequisites

The prerequisite to take this course is 1.0 SOC at the 100 level (SOC100H1 & SOC150H1 or SOC101Y1 or SOC102H1 & SOC103H1). Students without this/these prerequisite/s will be removed at any time discovered and without notice. These prerequisites cannot be waived.

Logistics

Lectures: Tue 6-8 p.m.
Location: 110 Ramsey Wright

Tutorials:
Wed 1-2.30 p.m. & 2.30-4 p.m., Thu 6-7.30 p.m. (Please ensure that you are enrolled in one of the three tutorials assigned to this class: Tut 5101-5103)
Location: FE-36, 725 Spadina Ave., basement

Q course page: TBA

Aplia: TBA

Mixed Feelings About Taking Stats?

If you do, you are not alone. Statistics seems like a daunting subject to many students. You might feel apprehensive about taking this class if you haven't practiced your math skills in a while or if you feel like math is not your strong suit.

For this class you are only expected to be familiar with basic algebraic operations. We will not use derivations and advanced mathematical concepts. What is more, statistics is not just about numbers! It includes more generally problem-solving, logic, and developing skills to communicate findings of statistical analyses to a broader audience.

How to Succeed

Practice is key for developing your ability to solve problems and getting information out of a group of numbers. Mere memorization of the techniques is not a successful strategy for learning statistical skills. The weekly homework, the lab assignments, and the examples we will be tackling during class will provide many opportunities for you to practice: on your own, together with other students, and with the help of the teaching team.

Learning and mastering statistics (and getting a good grade in the class) requires spending a considerable amount of time outside of class on a regular basis working through the material and practicing the techniques. The material from every week builds on the content of previous weeks. It is crucial to seek help proactively and as soon as possible should you need clarification (see Communication& Getting Help) .

Late Enrolment

If you enrolled late in the class, please get in touch with me as soon as possible, so we can make sure that you have all the necessary information.

Contents

Required Materials

Textbook: Healey, Joseph F. & Steven G. Prus. 2019. Statistics: A Tool for Social Research, 4th Canadian Edition. Nelson Education Ltd.

The textbook is available at the U of T bookstore: Book & Aplia access bundle for $126.9, Digital version & Aplia access (for 12-months) for $59.95

- IMPORTANT: with the purchase of the text, you will receive a password for Aplia, the online system this class uses for homework assignments.
- The textbook is also available on course reserves at Robarts library. The book is available for a 3-hour loan at a time.

Calculator: You will need a calculator for the mid-term tests and the final exam. You may *not use any type of phone as a calculator for the tests or the final exam*. All you need is a calculator with basic mathematical functions (addition, subtraction, multiplication and division) and a square root function

Learning Components & Course Requirements

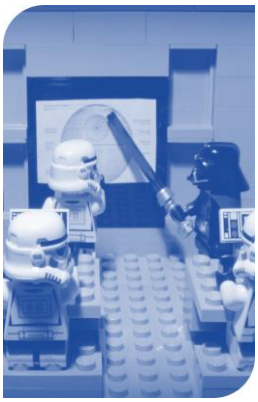
1. Get ready for the course

Math self-assessment & syllabus quiz. 1) Start by completing the 10-question math self-assessment on Q to check whether you remember the algebra required for this course. If you haven't practiced your math skills in a while, please review the "Prologue: Basic Mathematics Review" (p. 1-9) in the textbook. 2) In order to make sure that we are all on the same page, please read the syllabus in its entirety and answer 10 questions about it on Q. Once you have started, you have 100 minutes per quiz to finish. The deadline for these assignments is Saturday, 09/22 at 11:45 p.m. (*each quiz worth 0.5%,in total 1% of the final grade*)

2. Prepare for the lectures

Readings. Each week, we will read one or two chapters in the textbook. I strongly recommend that you read the assigned texts before each class period, and review the material after lectures. Take notes and jot down any questions you might have, so you can ask them in class or during tutorials. Past students have found that the material becomes more challenging after the first midterm test. Previewing and reviewing the material before and after class will be important to stay on track. We will work with the textbook during lectures and lab sessions, please remember to bring it with you.

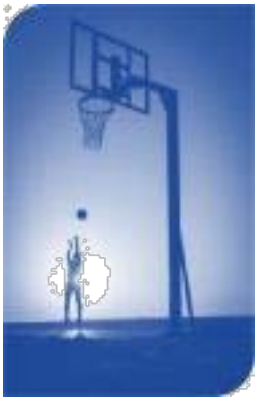
Pre-class online tutorials and self-check quizzes. Each week, there will be 2-3 short video tutorials that introduce some of the concepts we will cover. You are expected to watch these online tutorials before class and test your understanding of this material by completing a brief, 5-question self-check quiz (due before each lecture). You will be able to access these online lectures and quizzes on Q one week ahead of class, and you will have 50 minutes to complete these quizzes. This is enough time to go back and review parts of the material in the online tutorials or the textbook chapters should you be unsure of what the answer is right away. Please note: Since the self-check quizzes can be completed during an entire week and because they are only worth a very small fraction of your final grade, there will be no make-up opportunities/extensions for these quizzes. (*10 self-check quizzes, each worth 0.2%, in total 2% of the final grade*)



3. Attend lectures and tutorials

Lectures. The lectures will highlight the central concepts in the assigned chapters and illustrate these concepts with examples. We will also use the class time to work on practice examples and activities that illustrate and apply the statistical concepts we cover.

Participation. While attendance is not mandatory, I strongly recommend that you come to class and tutorials every week. Statistics is not a subject that can be successfully studied for a day or two before a test. The material from each week builds on the material from previous weeks. Keeping up with the readings, coming to class/tutorials regularly is crucial and will help you to stay on track.



Thomas Leuthard - Street Photography (CC BY 2.0)

4. Practice what you have learned

Weekly homework assignments. Over the course of the semester, you will complete 10 homework assignments on the Aplia learning plattform (no homework during mid-term weeks). Each homework consists of 10 to 15 problem sets. After answering a problem set, you will receive instant feedback, and you will know which questions you answered correctly. You will then have two more opportunities to complete the problem set before proceeding to the next (the system will generate a new problem set focused on the same concepts). Your homework grade will be based on the highest of the three attempts (if you are satisfied with the score of your first attempt, you can proceed to the next problem set).

The assignments will be available from 11.45 p.m. on Tuesdays and can be completed until Saturday of each week at 11:45 p.m., i.e. you will have a 96-hour window. To access the Aplia learning environment, create an online account through the Aplia course website (instructions: TBA). You must have an access code from the textbook to register your account. To complete the weekly homework, you will log in using the ID and the password you created during online registration.
These homework assignments provide you with the opportunity to practice the material in a low-stakes environment. Each homework is worth only a small fraction of your final mark (1.5%). Because there is such a long time window to complete these assignments (96 hours), there will be no opportunities for make-up assignments/extensions. Missing one or two homework assignments will not drastically lower your final grade.
(*10 homework assignments, each worth ~1.5%,in total 15% of the final grade*).

5. Develop and apply your analytical skills

Tutorials. Tutorials/labs for this class will take place every week in FE-36 (except for midterm test weeks). During tutorials, the teaching assistants will help you with the lab assignments (posted on Quercus before each lab session). They will get you started on the lab assignments using SPSS and provide you with guidance on how to interpret the results. The tutorials are also a good opportunity for you to ask any questions you might have about the class material with your fellow classmates and the teaching assistants. At the end of each textbook chapter you will find detailed instructions that will help you to complete the SPSS portion of the lab assignments. Please bring your textbook to each tutorial session.

Lab assignments. Each tutorial will be devoted to working on one part of the lab assignments. Hard copies of these assignments are due at three points during the semester (see below). Please DO NOT email assignments.

Assignment	Exercises from Weeks:	Due	Fraction of Final Grade
1	1 & 2	At the beginning of tutorials in week 3 (Wed 09/26 / Thu 09/27)	5%
2	3, 5, 6, & 7	At the beginning of tutorials in week 8 (Wed 10/31 / Thu 11/01)	5%
3	8, 11 & 12	At the beginning of the last class period (Tue, 12/04)	5%

6. Tests and exam

Mid-term tests. There will be two in-class tests in weeks 4 and 10 of the semester. The tests will consist of multiple choice and open-ended questions. The first mid-term on Tuesday, October 3rd will cover material from weeks 1-3. The second test on Tuesday, November 14th will cover content from weeks 5-9 (*each mid-term test worth 21%of final grade, in total 42%*)

Final exam. The final exam will cover material from the entire semester. The format of the questions will be the same as the mid-term tests, a combination of multiple choice and open-ended questions. The date, time and location of the final exam TBA. (*25% of final grade*)

For each mid-term and the final exam, you will have study guides outlining study strategies and the covered material. We will also hold (optional) study sessions before each test/exam. These will provide you with additional opportunities to ask questions and work on practice examples together with other students (time and location TBA). Students have found these study sessions most useful when they have reviewed the material before the session.

Overview of Grade Components and Grade Scale

		Each worth	Fraction of final grade
1 x	Syllabus quiz	0.5%	0.5%
1 x	Math-self assessment test	0.5%	0.5%
10 x	Self-assessment quizzes	0.2%	2%
10 x	Homework assignments	1.5%	15%
3 x	Lab assignments	5.0%	15%
2 x	Mid-term tests	21%	42%
1 x	Final exam	25%	25%
	Total		100%

Percentage grades will translate to letter grades as follows (standard university grade scale):

Percentage	Letter Grade	Grade Point Value
90-100	A+	4.0
85-89	A	4.0
80-84	A-	3.7
77-79	B+	3.3
73-76	B	3.0
70-72	B-	2.7
67-69	C+	2.3
63-66	C	2.0
60-62	C-	1.7
57-59	D+	1.3
53-56	D	1.0
50-52	D-	0.7
0-49	F	0.0

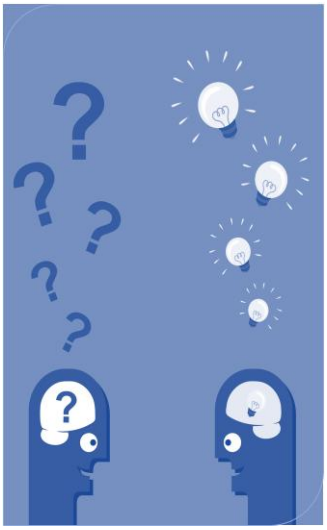
Computer Lab Access

If you need more time to complete the lab assignments outside of the tutorial sessions, the FE-36 computer lab will be open during other times during the semester (TBA).

SPSS is also available on computers in the Robarts Map and Data Library (5th floor of Robarts Library). This computer lab is open most hours during regular library hours. Please note: The lab may be booked for special events. Check the weekly schedule posted by the lab doors (not availableonline).

To check the availability of computers at the library online, go to: https://onesearch.library.utoronto.ca/wifi-and-computers

Communication & Getting Help



Email. Please use your University of Toronto email to communicate with me with regard to personal matters, or to communicate with the TAs. I will do my best to respond to your emails within 24 hours from Monday to Friday between 9 a.m. and 5 p.m.

Office hours. If you have any questions about the material we have covered during lectures or tutorials, please come and talk to us as soon as possible. We are very happy to sit down with you and answer your questions, or talk about any other concerns you might have with regard to the class or the assignments.

Instructor's regular office hours: Wed 10 a.m.-noon (Mon 3.30-5p.m. during midterm weeks)
TA's office hours: Time and location TBA.

Asking questions on Q. To clarify questions regarding the syllabus, assignments, as well as substantive questions about the course material, you can use the designated discussion boards on the course website. If something is unclear to you, chances are good that other students have the same or a similar question. Using these boards rather than email ensures that everybody has equal access to the same information.

- When you start a new thread on the discussion board, please use a subject line that describes the concept or substantive area you are asking about. Including the number of the textbook section number or the practice problem you are asking about will also help other students to find the information later.
- If you use the discussion board to ask questions about assignments please be mindful of the rules guiding academic integrity (see p. 8). Please do not post answers or part of your answers to assignments or homework problems. While we are happy to answer specific substantive questions related to assignments, we do not check answers before assignments are due. Sharing answers with class members on these boards violates the rules of academic integrity.

Late Work & Missed Deadlines

Lab assignments. Late submission will result in a 5% deduction for each day the assignment is late (starting with the day the assignment is due) unless you have a documented reason beyond your control (e.g. family emergency, illness) and provide the necessary documentation (see below). If you miss the deadline for a lab assignment, please notify the instructor promptly.

Please drop your late assignment into the drop-box for 200-level classes in Rm 225 in the Sociology Department (2nd floor, accessible: regular business hours). It is important that you do two things: 1) Please put the date/time stamp on your assignment (next to drop-box) and 2) email your TA to let them know that you handed in your assignment late. Otherwise, your assignment will not be graded (we do not check the drop-box without notification).

Make-up tests will only be given for legitimate, documented reasons. Please let me know ahead of time (or as soon as possible) if you are going to miss a test. It is your responsibility to provide the necessary documentation (see below).

Please note: Under university regulations, make-up tests or extensions are only required to be provided in circumstances where the student informs the instructor of his/her circumstances within 7 days of the missed assignment due date or test.

Documentation

If you miss a test or an assignment deadline, please do not contact the instructor or a TA unless you are following the steps described here (i.e. simply telling the professor or the TA why you missed a deadline or a test does not represent proper documentation):

"Sick Malamute" by redwolfoz (CC BY-NC-SA 2.0)

In case of illness, you must supply a duly completed Verification of Student Illness or Injury form (see www.illnessverification.utoronto.ca). A doctor's note is also acceptable but MUST contain the start date and anticipated end date of the illness. The form must be placed in a sealed envelope, addressed to the instructor, and submitted in class or instructor office hours.

If a personal or family crisis prevents you from meeting a deadline, you must get a letter from your college registrar (it is a good idea anyway to advise your college registrar if a crisis is interfering with your studies). The letter must be placed in a sealed envelope, addressed to the instructor, and submitted in class or instructor office hours.

Letter from Accessibility Services. This documentation is useful for ongoing medical issues that require special accommodation.

Accessibility Needs

If you require accommodations or have any accessibility concerns, please visit http://studentlife.utoronto.ca/as or call Accessibility Services at 416-978-8060 the as soon as possible. I will gladly work with the service on any needed accommodation.

Care Responsibilities for Children or Other Family Members

If you are a parent of young children or if you care for other family members, you may encounter unforeseen challenges (e.g. prolonged illness of a child) that may prevent you from keeping up with the course work. Should you experience such a situation, I recommend that you get in touch with your college registrar as soon as possible. They are best equipped to help you to find solutions with the instructors of all the courses you are taking this semester. Of course, you are always welcome to get in touch with me as well.

Did you know there is a Family Study Space at Robarts? For more information visit: https://onesearch.library.utoronto.ca/family-study-space-robarts

Grade Appeals

We do our very best to grade work fairly, consistently, and accurately. Nevertheless, one of us may unintentionally err in our grading duties. If you believe that your assignment or test has been mismarked, please adhere to the following rules:

- For simple mathematical errors, simply alert your TA of the mistake.
- All requests for re-grading the term tests or course assignments should be made to your TA. Please wait for 24 hours after the assignment has been returned to the class and submit your request within two weeks of that date. Re-grading requests submitted at a later date will not be considered.
- A short memo that clearly states specific reasons to justify the request and backs up these reasons with evidence from your assignment must be submitted to your TA.

If your appeal is deemed appropriate, the entirety of your test/assignment will be re-graded. Please note that upon re-grade your mark may go up, stay the same, or go down.

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 it is your responsibility to read this material and comply fully with it. Potential offences include, but are not limited to:

Lab assignments, homework and quizzes

- Sharing answers to assignments, including on social media, email, or in person
- Copying material word-for-word from a source (including, but not limited to the textbook, lectures, or study group notes), not placing the words within quotation marks and citing the source
- Submitting your own work in more than one course without the permission of the instructor
- Making up sources or facts
- Obtaining or providing unauthorized assistance on any assignment including: having someone re/write or add material to your work
- Lending your work to a classmate who submits it as his/her own

Misrepresentation

- Falsifying or altering any documentation required by the University, including doctor's notes
- Falsifying institutional documents or grades

"book sale loot" by Ginny (CC BY-SA 2.0)

On tests and exams

- Using or possessing any unauthorized aid, including a cell phone
- Looking at someone else's answers
- Letting someone else look at your answers
- Misrepresenting your identity
- Submitting an altered test for re-grading

Students who commit an academic offence face serious penalties. University policy requires cases of academic dishonesty to be reported to the department chair and the university.

You find additional information on the university's rules and expectations about academic integrity here:

http://www.artsci.utoronto.ca/osai/students

Course Schedule and Due Dates

All readings are from the Healey and Prus textbook unless otherwise specified. Please note that this course schedule may be subject to change at the discretion of the instructor.

Week	Class	Tutorials	Topics & Readings	Due Dates & Tests
1	09/11	Wed 09/12 Thu 09/13	Introduction: Level of measurement, basic descriptive statistics Reading: Chapters 1 and 2 up to (not including) section 2.6 (p. 52)	Self-check quiz 1 due Wed 09/11, 6 p.m. Homework W1 due Sat 09/15, 11:45 p.m.
2	09/18	Wed 09/19 Thu 09/20	Describing variables: Charts and graphs, measures of central tendency and spread Reading: Chapter 2 (section 2.6 and onward) and chapter 3	Self -check quiz 2 due Tue 09/18, 6 p.m. Homework W2 due Sat 09/22, 11:45 p.m. Math Self-assessment Test & Syllabus Quiz due Sat 09/22, 11:45 p.m.
3	09/25	Wed 09/26 Thu 09/27	Foundations of inferential statistics: The normal curve, z-scores, estimating probabilities Reading: Chapter 4 Optional test-prep study session (time & location TBA)	Self-check quiz 3 due Tue 09/25, 6 p.m. Homework W3 due Sat 09/29, 11:45 p.m. Lab assignment 1 due at the beginning of tutorials
4	10/02	No tutorials	Midterm-test I ▪ Covers material from weeks 1-3 ▪ Instructor office hours: Mon 10/01 3.30-5 p.m.	Midterm-test I (no quiz/homework)
5	10/09	Wed 10/10 Thu 10/11	From description to inference: Sampling, sampling distribution, estimating population means and proportions Reading: Chapters 5 and 6	Self-check quiz 4 due Tue 10/09, 6 p.m. Homework W5 due Sat 10/13, 11.45 p.m.
6	10/16	Wed 10/17 Thu 10/18	Introduction to hypothesis testing: Logic of hypothesis testing & one-sample hypothesis test for means and proportions Reading: Chapter 7 up to (not including) section 7.5 and Chapter 10	Self-check quiz 5 due Tue 10/16 at 6 p.m. Homework W6 due Sat 10/20, 11:45 p.m.

Week	Class	Tutorials	Topics & Readings	Due Dates & Tests
7	10/23	Wed 10/24 Thu 10/25	Describing and testing the relationship between two nominal/ordinal variables: Bivariate tables, measures of association for nominal-level variables, the chi-square test Reading: Chapter 7 (section 7.5 and onwards) and 8	Self-check quiz 6 due Tue 10/23, 6 p.m. Homework W7 due Sat 10/27, 11:45 p.m.
8	10/30	Wed 10/31 Thu 11/01	Hypothesis testing: Difference between two means or proportions (Two-sample test) Reading: Chapter 11 Optional test-prep study session (time & location TBA)	Self-check quiz 7 due Tue 10/30, 6 p.m. Homework W8 due Sat 11/03, 11:45 p.m. Lab assignment 2 due at the beginning of tutorials
9	READING WEEK – NO CLASS or TUTORIALS 11/05 - 11/09			
10	11/13	No tutorials	Midterm-Test II ▪ Covers material from weeks 5-8 ▪ Instructor office hours: Mon 11/12 3.30-6 p.m.	Midterm-Test II (no quiz/ homework)
11	11/20	Wed 11/21 Thu 11/22	Hypothesis testing with more than two means: One-Way Analysis of Variance (ANOVA) Reading: Chapters 12	Self-check quiz 8 due Tue 11/21, 6 p.m. Homework W11 due Sat 11/24, 11:45 p.m.
12	11/27	Wed 11/29 Thu 11/30	Associations between interval/ratio-level variables: Correlation, scatterplots and bivariate regression Reading: Chapter 13	Self-check quiz 9 due Tue 11/29 at 6 p.m. Homework W12 due Sat 11/31, 11:45 p.m.
13	12/04	Classes end Wed 12/05 no tutorials	Introduction to multivariate regression Reading: Chapter 14 Optional exam-prep study session (time & location TBA)	Self-check quiz 10 due Tue 12/04 at 6 p.m. Homework W13 due Sat 12/08, 11:45 p.m. Lab assignment 3 due during class on Tue 12/04
Final Exam – date, time, and location TBA Please note: The final exam will cover material from the entire semester.				