

Quantitative Analysis in Social Science Research

SOC202H1S (LEC5101)

Instructor: Irene Boeckmann

What This Course Is About

This class introduces you to basic statistical techniques for analyzing data. These techniques are one of the tools 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

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.

Teaching Team

Instructor: Irene Boeckmann

Email: irene.boeckmann@utoronto.ca

Office: Rm 338, 725 Spadina Ave

Office hours: by appointment

Teaching Assistants

Lei Chai (lei.chai@mail.utoronto.ca)

Office hours: by appointment, location: Rm 225

Mircea-Ioan Gherghina

(mircea.gherghina@mail.utoronto.ca)

Office hours: by appointment, location: Rm FE-36

Logistics

Lectures: Tue 6-8 p.m. in 1016 Wilson Hall

Tutorials: Wed 12-1.30 p.m., 1.30-3 p.m. & 6-7.30 p.m. in FE-36, 725 Spadina Ave. (basement)

Quercus:

<https://q.utoronto.ca/courses/140373>

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 _____	2
Late Enrollment _____	2
Learning Components & Course Requirements _____	3-5
Overview of grade components _____	5
Computer lab access _____	5
Communication & Getting Help _____	6
Late Work & Missed Deadlines _____	6
Documentation _____	7
Accessibility Needs _____	7
Care Responsibilities for Children or Other Family Members _____	7
Grade Appeals _____	7
Academic Integrity _____	8
Course Schedule & Due Dates _____	9-10

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: Hard copy of textbook & MindTap access bundle for \$131.95, MindTap access (incl. digital version of book) for \$59.95

- **IMPORTANT:** with the purchase of the text, you will receive a password for MindTap, 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: For the tests and the final exam you will need a non-programmable calculator (the use of phones as calculators is not allowed). 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 Quercus 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 Quercus. Once you have started, you have 100 minutes per quiz to finish. For due dates, please see course schedule. *(each quiz worth 0.5%, in total 1% of the final grade)*

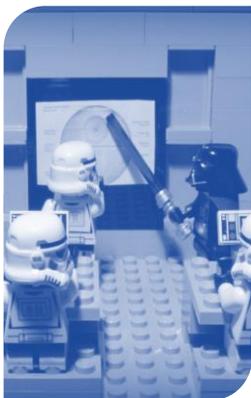
2. Prepare for the lectures

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 tutorials, please remember to bring it with you.



"Athletic Feet of Runner Positioned at Starting Block" by [tableatny](#) (CC BY 2.0)

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 Quercus one week ahead of class. You have 50 minutes to complete these quizzes. This is enough time to review parts of the online tutorial 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. We will not take attendance, but 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.

"Stormtroopers Training: Theory" (CC BY-NC-SA 2.0) by [Pedro Vezini](#)



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 9 homework assignments on MindTap (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 Sunday of each week at 11:45 p.m., i.e. you will have a 5-day window. To access MindTap, create an online account through the MindTap course website (see information on Quercus). 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 (~1.6%). Because there is such a long time window to complete these assignments, there will be no opportunities for make-up assignments/extensions. Missing one or two homework assignments will not drastically lower your final grade. *(9 homework assignments, each worth ~1.6%, in total 15% of the final grade).*

5. Develop and apply your analytical skills

Tutorials. With the exception of midterm test weeks the tutorials will take place every week in the Sociology Department (FE-36, basement). During most weeks, tutorials will start with a **brief group exercise**. Because these for-credit tutorial activities are only worth 2% of your final grade in total, there will be no make-up opportunities for these exercises (you can miss one and still get full credit).

The teaching assistants will provide instruction on how to use the statistical software SPSS to conduct statistical analyses. They will also get you started on the lab assignments (posted on Quercus before each lab session) and provide you with guidance on how to interpret the results of your analyses. The tutorials are also a good opportunity for you to ask any questions you might have about the class material. 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. Please submit your lab assignment on Quercus and hand in a hard copy in the tutorial. We will only grade hard copies these assignments. Please DO NOT email assignments. They are due at three points during the semester:

	Exercises :	Due	% of Final Grade
1	Weeks 1 & 2	At the beginning of tutorials in week 3	5%
2	Weeks 3, 5, 6, & 7	At the beginning of tutorials in week 8	5%
3	Weeks 8, 11 & 12	At the beginning of the last class period	5%

6. Tests and exam

Mid-term tests. There will be two in-class tests which will consist of multiple choice and open-ended questions. Please consult the course schedule for test dates. (*each mid-term test worth 20% of final grade, in total 40%*)

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. The date, time and location of the final exam TBA. (*25% of final grade*)

For each mid-term and the final exam study guides outlining study strategies and the covered material will be posted on Quercus ahead of time. 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 (time and location TBA). Students have found these study sessions most useful when they have reviewed the material in advance.

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%
9 x	Homework assignments	~1.6%	15%
3 x	Lab assignments	5.0%	15%
9 x	Lab group exercises		(in total) 2%
2 x	Mid-term tests	20%	40%
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: Tuesdays 10-12 a.m. & 2-4 p.m.; Thursdays, 12-2 p.m.

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 available online).

To check the availability of computers at the library online, go to:

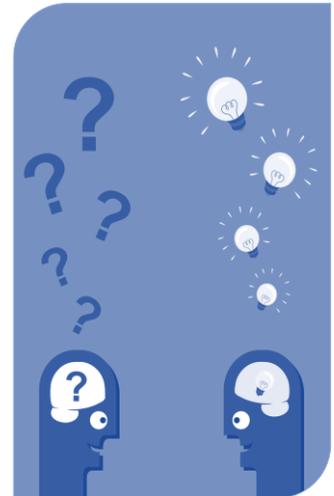
<https://onesearch.library.utoronto.ca/wifi-and-computers>

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 36 hours from Monday to Friday, 9 a.m. to 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.

Office hours are by appointment: Please use the Quercus calendar function (see instructions below) to book or cancel an appointment 12 hours ahead of time at the latest.



Making an appointment on Quercus. To schedule an appointment with the instructor or the TAs, click on the “Calendar” in the menu on the left-hand side, then go to “Find Appointments” on the right-hand side. Each slot is 15 minutes. If you need more time, you can book more than one adjacent slot. You can also leave a note about what you would like to talk about in the “comments” box. Should all the slots for a given week be taken, please email me (irene.boeckmann@utoronto.ca). Please include details about the nature of your meeting request and a list of dates/times when you are available in your message. You will typically receive a response within 36 hours.

Asking questions on Quercus. 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.

Please be mindful of the rules guiding academic integrity (see p. 8): 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 on these boards (or elsewhere) violates the rules of academic integrity.

Late Work & Missed Deadlines

Lab assignments. Late submission will result in a 5% deduction for each 24-hour period 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 lab assignment into the drop-box for 200-level classes in Rm 225 in the Sociology Department (2nd floor, during 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). Under university regulations, make-up tests are only required to be provided in circumstances where the student informs the instructor of his/her circumstances within 7 days of the missed 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 [redwolfox](#)
(CC BY-NC-SA 2.0)

In case of **illness**, you must supply doctor's not or a duly completed Verification of Student Illness or Injury form:

(<http://www.illnessverification.utoronto.ca/index.php>)

A doctor's note 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: <https://governingcouncil.utoronto.ca/secretariat/policies/code-behaviour-academic-matters-july-1-2019>.

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:

<https://www.academicintegrity.utoronto.ca/process-and-procedures/>

Turnitin

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* web site.

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.

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	01/07	01/08	<p>Introduction: Level of measurement, basic descriptive statistics</p> <p>Reading: Chapters 1 and 2 up to (not including) section 2.6 (p. 52)</p>	<p>Self-check quiz 1 due Sun 01/12, 11:45 p.m.</p> <p>Homework W1 due Sun 01/12, 11:45 p.m.</p>
2	01/14	01/15	<p>Describing variables: Charts and graphs, measures of central tendency and spread</p> <p>Reading: Chapter 2 (section 2.6 and onward) and chapter 3</p>	<p>Self-check quiz 2 due Tue 01/14, 6 p.m.</p> <p>Homework W2 due Sun 01/19, 11:45 p.m.</p> <p>Math Self-assessment Test & Syllabus Quiz due Sun 01/19, 11:45 p.m.</p>
3	01/21	01/22	<p>Foundations of inferential statistics: The normal curve, z-scores, estimating probabilities</p> <p>Reading: Chapter 4</p> <p>Optional test-prep study session (time & location TBA)</p>	<p>Self-check quiz 3 due Tue 01/21, 6 p.m.</p> <p>Homework W3 due Sun 01/26, 11:45 p.m.</p> <p>Lab assignment 1 due at the beginning of tutorials</p>
4	01/28	No tutorials	<p>Midterm-test I Covers material from weeks 1-3</p>	<p>Midterm-test I (no quiz/homework)</p>
5	02/04	02/05	<p>From description to inference: Sampling, sampling distribution, estimating population means and proportions</p> <p>Reading: Chapters 5 and 6</p>	<p>Self-check quiz 4 due Tue 02/04, 6 p.m.</p> <p>Homework W5 due Sun 02/09, 11.45 p.m.</p>
6	02/11	02/12	<p>Introduction to hypothesis testing: Logic of hypothesis testing & one-sample hypothesis test for means and proportions</p> <p>Reading: Chapter 7 up to (not including) section 7.5 and Chapter 10</p>	<p>Self-check quiz 5 due Tue 02/11 at 6 p.m.</p> <p>Homework W6 due Sun 02/16, 11:45 p.m.</p>

Week	Class	Tutorials	Topics & Readings	Due Dates & Tests
7			READING WEEK	
8	02/25	02/26	<p>Describing and testing the relationship between two nominal/ordinal variables: Bivariate tables, measures of association for nominal-level variables, the chi-square test</p> <p>Reading: Chapter 7 (section 7.5 and onwards) and 8</p>	<p>Self-check quiz 6 due Tue 02/25, 6 p.m.</p> <p>Homework W8 due Sun 03/01, 11:45 p.m.</p>
9	03/03	03/04	<p>Hypothesis testing: Difference between two means or proportions (Two-sample test)</p> <p>Reading: Chapter 11</p> <p>Optional test-prep study session (time & location TBA)</p>	<p>Self-check quiz 7 due Tue 03/03, 6 p.m.</p> <p>Homework W9 due Sun 03/08, 11:45 p.m.</p> <p>Lab assignment 2 due at the beginning of tutorials</p>
10	03/10	No tutorials	<p>Midterm-Test II</p> <p>Covers material from weeks 5-8</p>	<p>Midterm-Test II (no quiz/ homework)</p>
11	03/17	03/18	<p>Associations between interval/ratio-level variables: Correlation, scatterplots and bivariate regression</p> <p>Reading: Chapters 13</p>	<p>Self-check quiz 8 due Tue 03/17, 6 p.m.</p> <p>Homework W11 due Sun 03/22, 11:45 p.m.</p>
12	03/24	03/25	<p>More on bivariate regression & introduction to multiple regression</p> <p>Reading: Chapter 14</p>	<p>Self-check quiz 9 due Tue 03/24 at 6 p.m.</p> <p>Homework W12 due Sun 03/29, 11:45 p.m.</p>
13	03/31	no tutorials	<p>More on multiple regression</p> <p>Optional exam-prep study session (time & location TBA)</p>	<p>Self-check quiz 10 due Tue 03/31 at 6 p.m.</p> <p>Lab assignment 3 due in class on Tue 03/31</p>
<p>Final Exam – date, time, and location TBA</p> <p>Please note: The final exam will cover material from the entire semester.</p>				