Department of Sociology | University of Toronto | Summer 2020

Intermediate Quantitative Analysis

SOC252H1S

Instructor: Matt Parbst, MA

What This Course Is About

The ability to analyze, interpret and understand quantitative data is becoming an increasingly valuable skill for both the public and private sector. To build on this skill, this course extends knowledge from SOC202 (or equivalent) with specific attention to the logic and application of multivariate regression and its extensions utilizing real wold data. To do so, we will be using the statistical program STATA where you will get hands on experience analyzing quantitative data.

Learning Objectives

1. Develop your ability to apply conceptual models to quantitative analysis
2. Extend your ability to interpret and write about statistical results
3. Develop your skills to analyze data with STATA effectively
4. Provide you with experience in working with real world data

Logistics

Lectures: Delivered Asynchronously Mondays and Wednesdays 12:00-2:00PM

Tutorials: Delivered Synchronously Mondays and Wednesdays 2:00-4:00

Quercus:

https://q.utoronto.ca/courses/155107

Prerequisites

The prerequisite to take this course is SOC202 or equivalent. Students without this/these prerequisite/s will be removed at any time discovered and without notice. These prerequisites cannot be waived.

Teaching Team

Instructor: Matt Parbst

Email: matt.parbst@mail.utoronto.ca

Office: Online via Zoom

Office hours: Fridays 2:00-4:00P.M.

Teaching Assistant1

Catherine Yeh

Email: catherine.yeh@mail.utoronto.ca

Office: Online: (BB Collaborate)

Office hours: Tuesdays 1-4 PM on July 14th, July 21st, August 4th, and August 11th only. Also available for questions by email.

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 homework 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

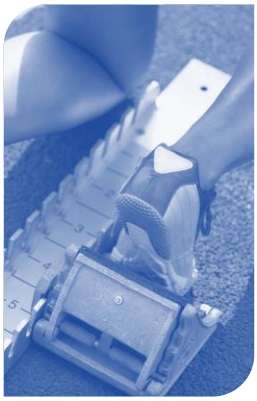
Textbook: Agresti, Alan (2018). Statistical Methods for the Social Sciences, 5th edition. Pearson. (Do look for used editions as the 4th edition is compatible as well). You can purchase this book online for a fraction of the cost using this link:

https://www.campusebookstore.com/integration/AccessCodes/default.aspx?bookseller_id=96&Course=STG+SOC+252HS+STATISTICAL+METHODS+FOR+THE+SOCIAL+SCIENCES+4E&t=permalink

Calculator: For the tests 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

Prepare for the lectures



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

Readings. Each week, we will read one or two chapters in the textbook. I strongly recommend that you read the assigned texts before watching each asynchronous lecture, 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. Previewing and reviewing the material before and after class will be important to stay on track.

Attend lectures and tutorials

Lectures. The lectures will highlight the central concepts in the assigned chapters and illustrate these concepts with examples.

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.

Choose Your Country Data

Data. We will be using selected countries from the European Social Survey 2014 which will be provided on Quercus. Students will have to select one country to do analysis on for their homework assignments.

Homework Assignments

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

Homework. There will be two homework's assigned for this course designed to mirror the topics covered in the course. In this course, you will have the ability to re-submit both homework if you want to improve your grade for partial credit if answers are sufficiently redone, known as a "Learning Opportunity" in the schedule. Partial credit is defined as 50% of the marks available to be earned. For example, if a student received a 70% on a homework, they may earn an additional 15% in the re-submission (i.e. half of the 30%). Students will have 1 week after grades are submitted to re-submit their changes. Note that it will be assumed that you are actively working to completion each week. I will send out recommended progress expectations every Monday during the course. Homework are due by 11:59 on the Friday due.

Develop and apply your analytical skills

Tutorials. All tutorials will be held synchronously and will provide instruction on how to use the statistical software STATA to conduct statistical analyses. Each tutorial will demonstrate applied material from lecture as well as guide you through your homework assignments. All material in homework will be covered in tutorials.

Tests

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.

For each test 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 TBA). Students have found these study sessions most useful when they have reviewed the material in advance.

Overview of Grade Components and Grade Scale

	Date	Fraction of final grade
Homework assignment 1	July 17th	20%
Test 1	July 22nd	15%
Homework assignment 2	August 7th	40%
Test 2	August 12th	25%

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

Midterm Review

We will be conducting an *anonymous* midterm review where I can get your feedback for things that may not be working or that could improve. I believe feedback is important at all levels and want to give you the best learning experience I possibly can, so your feedback is valuable. The date will be included in the course calendar. The review will be due Sunday, July 25th.

Stata & Internet

You will be required to download Citrix Reciever in order to use STATA remotely. Instructions on how to download the receiver will be posted on the home page on Quercus. The download page can be found here: *https://www.utm.utoronto.ca/iits/services/computer-software* . Note that neither I or the TA have expertise on installing this software on your particular computer. All technical questions should be directed to the help desk which is supported by the UTM campus at their email helpdesk.utm@utoronto.ca or phone 905-828-5344. The University of Toronto recommends for those who believe they have issues with internet connectivity to follow this link https://www.utoronto.ca/covid19-contact. The student will get a response that directs them to a website with instructions on how to access VPN. Do this before test day please.

Weekly Task List

Each week I will send an email that Monday reminding students what work needs to be done that week. This is intended to keep everyone on track and to limit situations where students are falling behind. It may be thought of as a "benchmark" to ensure you are completing things in an ongoing fashion rather than dramatic bursts of work.

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 (matt.parbst@mail.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

Homeworks. 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 follow the necessary procedures (see below). If you miss the deadline for a lab assignment, please notify the instructor promptly.

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 contact the instructor and declare your absence on ACORN on the day of the assignment or test.

"Sick Malamute" by redwolfoz
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If a personal or family crisis prevents you from meeting a deadline, you must contact from your college registrar (it is a good idea anyway to advise your college registrar if a crisis is interfering with your studies), and have your registrar contact the instructor.

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:

Homeworks

- 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/

Course Schedule and Due Dates

All readings are from the Agresti 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	07/06	No Tutorial	Overview and Review Reading: Chapter 1 Section 1.3 only ; Chapter 2 Section 2.1 only; Chapter 3 (skip 3.1). Wheaton, B. 2003. "When methods make a difference". Current Sociology. 51(5) 543-72.	
1	07/08	07/08 2:00 to 4:00 p.m.	Probability & Inference Reading: Chapter 4, Chapter 6	
2	07/13	07/13 2:00 to 4:00 p.m.	Cross-Classification Reading: Online: http://onlinestatbook.com/2/chi_square/Chi_Square.html Sections A through E http://vassarstats.net/textbook/ Chapter 8 https://onlinecourses.science.psu.edu/stat504/node/69 Lesson 3	
2	07/15	07/15 2:00 to 4:00 p.m.	Multivariate Tables & Controls Optional test-prep study session (time TBA) Reading: Chapter 8	Assigment 1 due Friday at 11:59 p.m.
3	07/20	07/20	Correlation and Regression Chapter 9	
3	07/22	No tutorial	Test I Covers material from weeks 1-3	Test I Mid-Term Feedback due Sunday, July 25 12PM
4	07/27	07/27 2:00 to 4:00 p.m.	Multivariate Regression Reading: Chapter 11	
4	07/29	07/29 2:00 to 4:00 p.m.	An introduction to Models Reading: Chapter 10 Chapter 14 section 14.1 only	Assignment 1 Redo Due

Week	Class	Tutorials	Topics & Readings	Due Dates & Tests
5	08/03	None	Logistic Regression Chapter 15: Skip sections 15.4 and 15.6	Assignment 2 Due Friday at 11:59p.m.
5	08/05	08/05	Interaction Reading adapted with permission from Wheaton & Young (2020) (provided on Quercus)	
6	08/10	08/10	Mediation Reading adapted with permission from Wheaton & Young (2020) (provided on Quercus)	
6	03/10	No tutorials	Midterm-Test II Covers material from weeks 3-6	Midterm-Test II
7	No Class	No Tutorial		Assignment 2 Redo Due Friday at 11:59p.m.

July 2020

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28	29	30	1 Holiday	2	3	4
5	6 Classes Begin **Week 1** *Lecture 1* Weekly Task List Overview/Review	7	8 *Lecture 2* Probability & Inference *Tutorial 1*	9	10	11
12	13 **Week2** *Lecture 3* Weekly Task List Cross-Classification *Tutorial 2*	14	15 *Lecture 4* Multivariate tables *Tutorial 3* **Optional test-prep study session**	16	17 **Assignment 1**	18
19	20 **Week 3** *Lecture 5* Weekly Task List Correlation and Regression *Tutorial 4*	21	22 *Lecture 6* **Test 1** *No Tutorial*	23	24	25 Midterm Review Feedback Due.
26	27 **Week 4** *Lecture 7* Weekly Task List Multivariate Regression *Tutorial 5*	28	29 *Lecture 8* An introduction to Models *Tutorial 6*	30	31 **Assignment 1 Learning Opportunity Due**	1

August 2020

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26	27	28	29	30	31	1
2	3 Holiday **Week 5** *Lecture 9* Logistic Regression	4	5 *Lecture 10* Interaction *Tutorial 7*	6	7 **Assignment 2 Due**	8
9	10 **Week 6** *Lecture 11* *Tutorial 8* Mediation	11	12 *Lecture 12* Test 2	13	14	15
16	17 Classes End	18	19 Examination Period	20 Examination Period	21 Examination Period **Assignment 2 Learning Opportunity Due**	22 Examination Period
23 Examination Period	24 Examination Period	25 Examination Period	26 Examination Period	27 Examination Period	28	29
30	31	1	2	3	4	5