Introduction to Quantitative Methods

SOC202H1F – Summer 2020

Class Sessions: 12-2PM on Monday and Wednesday on Blackboard Collaborate
Tutorial Sessions: 2:10P-3:30P on Monday and Wednesday on Blackboard Collaborate

Note: This is an online course that blends synchronous and asynchronous elements. Lectures and tutorials will be given in real time during the hours listed above. All sessions, however, will be recorded so that students may view them at their convenience. We encourage all students to attend the lectures and tutorials so that they may ask questions and get needed clarification. We understand, however, that students will have varied schedules and differing obligations during these weeks. Students will need the ability to use Microsoft Word and Blackboard Collaborate; they will also need to download SPSS for statistical analysis (described in detail below).

Instructor:
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Office Hours: By appointment; please e-mail to set up appointment

Teaching Assistants:
Haosen Sun, MA (haosen.sun@mail.utoronto.ca)
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Office Hours: By appointment on Tuesdays 3-4P; please use Calendar function on Quercus to schedule

DESCRIPTION

Sociology is an empirical discipline. This simply means that we rely on observable data to make claims and to evaluate theories about how the world works. Statistical methods are an essential component of the methodological tool kit in sociology, as quantitative information is a common form of data for our discipline. Beyond its relevance for social scientific discovery, statistical reasoning will likely pay dividends as you move beyond university life. Indeed, understanding and interpreting data is an increasingly important skill in many professional fields. This course is intended to give you the basic skills to pursue work in a data-driven occupation.

This course provides an overview of common quantitative methods in sociology. The course begins with data description, focusing on the distribution of single variables. We then shift to the world of normal distributions, probability, sampling distributions, and statistical inference. The concepts are somewhat challenging and abstract, but they have important implications for our broader goal of statistical analysis: to make statements about the real world without having to study the entire population of interest.

Finally, we get to the point of testing hypothesis and documenting the strength of relationships between variables. As we will discuss, a hypothesis posits an association between two or more variables. This is a crucial aim of empirical sociology. We may want to know, for instance, whether people's social class shapes their political attitudes, whether criminal justice proceedings are affected by the gender of the defendant, whether highly diverse organizations are more innovative than less diverse organizations, or any other number of issues. Sociological theories help us predict these associations, but we need

statistical tests to weigh the evidence one way or another. The type of test we use will depends on how those variables were measured, and so in the final weeks of the class we will move through an orderly sequence of statistical tools based on different types of variables.

Throughout the course, we will focus on the conceptual issues underlying statistical procedures and why these techniques aid us in understanding the social world. We will do many simple mathematical computations, but this is not a math class. Indeed, we will only presume that you have had basic high school math—no advanced mathematical training is necessary for this course. We will also practice doing statistics on SPSS, a user-friendly statistics program widely used in many fields and accessible to students at University of Toronto.

The mantra for this class is pretty simple: **practice, practice, practice**. Statistics is not a subject that comes naturally to most students. Most of us have to use a variety of techniques to feel comfortable with the material. Accordingly, this course will involve not only assigned readings and online lectures, but also regular homework assignments and lab work to reinforce the concepts through active engagement.

GOALS OF THE COURSE

There are three primary goals for this class.

- The course should help make us better consumers of social science research so that we can critically evaluate material in classes, in the media, and in matters of public debate.
- The course should aid our understanding of how quantitative evidence is used to support, challenge, debunk, or refine sociological theories.
- The course should build familiarity with conducting computerized statistical analyses with the SPSS program.

PREREQUISITE

The prerequisite to take this course is SOC101Y (or SOC102H and SOC103H or SOC102H+SOC150H or SOC103H1+SOC150H1 or SOC100H1+SOC150H1). Students without one of these combinations will be removed at any time and without notice.

LEARNING COMPONENTS

(1) Online class lectures

The first two hours of each class session will be used to emphasize key concepts found in the weekly reading and to work through examples to reinforce the material. Though attendance is not required, we highly recommend that you join the class each session. To really understand the content, it is helpful to interact with class material through multiple channels—first reading on your own, but then hearing and seeing the concepts explained during class, discussing the concepts with classmates and TAs, and practicing through the assigned homework.

(2) Textbook

This course will use the following text:

Healey, Joseph F., Steven G. Prus, and Riva Lieflander. 2019. *Statistics: A Tool for Social Research*, 4th Canadian Ed. Nelson Education Ltd.

The textbook is available as an e-book or as hard copy, both available at https://www.nelsonbrain.com/webapp/wcs/stores/servlet/en/micrositesca/UofT-SOC202. The ebook comes bundled with MindTap Instant Access, the online platform this class uses for homework assignments ($59.95). The other option, hard copy text package ($131.95), provides the print text and an access code for MindTap. If you choose to purchase a used textbook, you will need to also purchase MindTap Instant Access.

(3) Lab/Tutorial Sessions and Use of SPSS

Lab/tutorial sessions for this class will be held on Blackboard Collaborate, directly following class lecture. The goal of these 50-minute sessions is to help you learn to use the SPSS statistical program to apply your statistical skills to actual Canadian data. Teaching assistants will guide you through statistical exercises found in the Healey and Prus textbook, help you interpret the results, and help you begin your lab assignment. There are three lab assignments; each is due online (on May 15, May 29, and June 17). Each lab assignment consists of work conducted in lab during the preceding sessions. A penalty of 5% points per work day will be assessed for late work.

To access SPSS, students must create a free trial account for the software at https://www.ibm.com/account/reg/ca-en/signup?formid=urx-19774. The program can be downloaded and used for free through June 15.

Several days are designated as optional "lab-only" sessions (see course schedule below). These are opportunities to drop in and seek help from the TAs when finalizing lab assignments.

(4) Weekly homework assignments

To reinforce course material, students will be required to take weekly homework assignments. These assignments will be available at 9a each Monday and can be completed until 11:59p each Friday. That is, you will have a 111-hour window in which each assignment can be completed.

You will need to purchase MindTap for Healey/Statistics in order to complete the homework. Please go to the following site for the best price:

www.nelsonbrain.com/webapp/wcs/stores/servlet/en/micrositesca/UofT-SOC202

Once you have paid for the MindTap instant access code, you will be put directly into the course homework page.

If you purchase the print textbook plus the MindTap printed access code, you will need the course key, MTPP-ZF2N-BW5R, to enter the course. You would then visit the following website to access homework assignments: https://login.nelsonbrain.com/cb/entitlement.htm?code=MTPPZF2NBW5R.

Each week a homework assignment is given, you will log in using the ID and password you created during online registration. The website will contain short assignments that correspond with the textbook reading. After answering most questions, you will receive immediate feedback on your performance—i.e., you will know which questions were correct and which ones were incorrect. Most questions allow a total of three takes. Your mark for the assignment will be based on the highest of the three attempts.

Because there is such large window of time during which assignments can be taken (9a Monday – 11:59p Friday = 111 hours) and because assignments can be taken anywhere where an internet connection is available, there are no opportunities for make-up assignments.

EVALUATION COMPONENTS

	Number of occasions	Percent value	Total percent of final mark
Homework assignments	6	7.67% each	46%
Lab assignments	3	18% each	54%
			100% (total)

LATE WORK AND MISSED DEADLINES

Homework assignments can be completed from anywhere with an internet connection and anytime between 9a on Mondays and 11:59p on Fridays, so there are no make-ups offered for these assignments. Lab assignments are likewise due by 11:59p on their due dates. A 5% penalty will be added for each workday that a lab assignment is overdue.

Please notify me promptly if you must miss a deadline and have declared your absence on ACORN as soon as possible.

SUMMARY OF DUE DATES

Component	Due Dates
Homework assignments	
Homework assignment a	Due 11:59p 8th of May
Homework assignment b	Due 11:59p 15th of May
Homework assignment c	Due 11:59p 22nd of May
Homework assignment d	Due 11:59p 29th of May
Homework assignment e	Due 11:59p 5th of June
Homework assignment f	Due 11:59p 12th of June
Lab Assignments	
Lab assignment 1	Due 11:59p 15th of May
Lab assignment 2	Due 11:59p 29th of May
Lab assignment 3	Due 11:59p 17th of June

ACADEMIC INTEGRITY

Students are expected to know and adhere to the University's principles of academic integrity. Any act of plagiarism or other unethical behavior will be addressed in accordance with University guidelines. Please see the "Code of Behaviour on Academic Matters" (http://www.governingcouncil.utoronto.ca/policies/behaveac.htm) for specific information on academic integrity at the U of T.

ELECTRONIC COMMUNICATIONS AND QUERCUS

The University of Toronto Quercus system is the hub for all course activity. Besides hosting the lectures and tutorials (through the Blackboard Collaborate tool), Quercus will contain the course syllabus, assignments, discussion board, and course announcements. Students are responsible for the content of all course materials and for checking their official utoronto.ca email address regularly. Emails sent to the utoronto.ca email address on file are deemed to have been received.

Questions about course content should be posted on the course discussion board on Quercus, not sent by e-mail to the instructor or TA. The reason we encourage you to post your questions to Blackboard is that if a certain concept is unclear to you, chances are that many of your classmates are in the same boat. We find that it is effective to address content-related questions in a place where everyone can benefit from the information. There will be discussion boards available for the classes leading up midterm test 1, another discussion board for the classes preceding midterm test 2, and a third discussion board for final exam concerns. Haosen Sun and Dana Wray, our course TAs, will be actively monitoring the discussion board and will respond to questions posed on that platform.

Here are a couple other important points about electronic communication:

- Please note that the instructor and TA will not respond to e-mails about issues that are clearly specified in the syllabus (e.g., due dates, office hour times)
- Requests for accommodations should be sent to the course instructor (Schafer), not the TA
- All emails should include the course code SOC202 in the subject line, and be signed with the student's full name and student number.

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. If you believe that your lab assignment has been mismarked, please adhere to the following rules:

- For basic mathematical errors, simply alert one of our course TAs 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 Instructor Schafer 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 30 days after receiving a mark to appeal it.

ACCESSIBILITY NEEDS

If you have a disability/health consideration that may require specific accommodations, please approach the instructor (not your TA) and accessibility services. I will gladly work with the service on any needed accommodation. Students who seek accommodations require medical documentation and an intake interview with a disability advisor to discuss their individual needs. To schedule a registration appointment with a disability advisor, please call the Centre at 416-978-8060. See also http://www.accessibility.utoronto.ca.

COURSE SCHEDULE

Week	Classes and Tutorials	Topics	Readings	Due Dates
1	May 4	Introduction, level of measurement, basic descriptive statistics pt. 1	Healey et al. reading: Chapter 1 and Chapter 2 up to (not including) section 2.6 (pg. 52)	**HW a due 11:59p May 8**
	May 6	Basic descriptive statistics, pt. 2; central tendency and dispersion	Healey et al. reading: Chapter 2 (section 2.5 and onward) and Chapter 3	
2	May 11	The normal curve, z-scores, and probability	Healey et al. reading: Chapter 4	**HW b due 11:59p May 15**
	May 13 – optional **tutorial only**	Tutorial will be available for anyone with questions about Lab Assignment 1		**Lab Assignment 1 due 11:59 May 15**
3	May 18 – **no class or tutorial** (Victoria Day)			**HW c due 11:59p May 22**
	May 20	From description to inference: sampling, sample distributions, and confidence intervals	Healey et al. reading: Chapters 5-6	
4	May 25	Introduction to hypothesis testing	Healey et al. reading: Chapter 7 up to (not including) section 7.5, section 7.10, and Chapter 10	**HW d due 11:59p May 29**

	May 27	Two sample hypothesis tests; extending hypothesis tests to ANOVA	Healey et al. reading: Chapter 11 up to (not including) section 11.4 and Chapter 12	**Lab Assignment 2 due 11:59 May 29**
5	June 1 June 3 - optional **tutorial only**	Measures of association and hypothesis-testing at the nominal level: Chi-square, Phi, Cramer's V, and Lambda Tutorial will be available for anyone with questions about Lab Assignment 2	Healey et al. reading: Chapter 7 (section 7.5 and onward, but not 7.10) and Chapter 8	**HW e due 11:59p June 5**
6	June 8 June 10	Hypotheses and measures of association at the interval/ratio level: scatterplots, correlation, regression Testing hypotheses with multiple regression	Healey et al. reading: Chapter 13 Healey et al. reading: Chapter 14	**HW f due 11:59p June 12**
7	June 15 - optional **tutorial only**	Tutorial will be available for anyone with questions about Lab Assignment 2		**Lab Assignment 3 due 11:59 June 17**