SOC 210: Introduction to Social Statistics
Course Syllabus, FALL 2022 (32886)
University of Alberta

Instructor: Dr. Michelle Lee Maroto
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Office Hours: Weds. and Thurs. by appointment, see calendly.com/dr-maroto for bookings

Course Meeting: T R 2:00-3:20pm in T 1-091

Lab Meetings: T B 39, (D1) M 9:00am – 10:50am, (D2) M 11:00am – 12:50pm,
(D3) M 1:00pm – 2:50pm, or (D4) M 3:00pm – 4:50pm

Teaching Assistants:

Joao Krieger	jkrieger@ualberta.ca
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Required Course Text:

Healey, Joseph F., Steven G. Prus, and Riva Lieflander. 2019. *Statistics: A Tool for Social Research, Fourth Canadian Edition*. Nelson Education.

NOTES: eBook version available for FREE via the library. Earlier editions of this book are also fine to use for the course. The pages numbers might differ, but the chapters should match up.

Prerequisite:

SOC 100 or consent of instructor.

Technology Requirements:

You will need access to (1) a scientific, non-programmable calculator and (2) the statistical programs, R and R Studio, to complete labs and certain homework assignments. We will discuss how to download and set-up this program in class.

This course uses eClass for posting content and submitting assignments. I will also make announcements via eClass, so please check the website regularly.

Policy about course outlines can be found in Course Requirements, Evaluation Procedures, and Grading of the University Calendar.

Course Description

SOC 210 provides an introduction to statistical concepts and methods used by social scientists to analyze quantitative data. The course is divided into three parts. **Part I** covers descriptive statistics. During this part of the course we will learn about frequency distributions, measures of central tendency, and the normal curve. We will also address where data come from, along with data visualization. **Part II** covers inferential statistics. In Part II we will focus on probability and sampling, estimation procedures, hypothesis testing, and bivariate tables. **Part III** incorporates measures of association. During this part of the course we will cover bivariate measures of association for nominal and ordinal variables, along with bivariate and multivariate regression.

Course Goals

"Statistics" is often a scary word for students, particularly those who have had trouble with math courses in the past. Many students cringe at the word, or worse, go running in fear and put off taking a stats course until the last possible moment. My goal in this course is to show you that statistical methods of data analysis are not scary; they are useful, beneficial, vital, and they can even be (gasp!) fun.

Statistical knowledge does not come easy to everyone. This course will likely require hard work on your part, but that work comes with a huge payoff. The skills that you acquire in SOC 210 will be useful for you as both a producer and consumer of quantitative data because statistics are everywhere in our data driven world. Statistics permeate media news coverage and apply to all areas of life, from finance to shopping to sports. Statistical techniques also play a prominent role across a variety of occupations that include research, marketing, data management, and public policy jobs. Mastering basic statistical concepts and techniques will therefore improve your understanding of the social world, better equip you to enter various professions, and help you to make important life decisions.

Course Objectives

After successfully completing the course, you will be able to:

- understand what statistics do and why they are important;
- calculate and interpret measures of central tendency and variability in statistical data;
- understand the principles of sampling and probability;
- explain the logic of hypothesis testing;
- assess the strength of association between social science variables;
- compute and interpret regression equations;
- achieve basic competence in using statistical software;
- critically evaluate the data and methods used by social scientists; and
- assess the accuracy of statistical data in the media.

Course Structure

This course includes both lectures and lab sessions.

Lectures:
Lectures are in-person in the assigned classroom. I expect you to be present as much as possible and to participate in lecture. I also expect you to come to class with a calculator, writing tools, and paper, prepared to work on example problems together. I also expect everyone in this class to be respectful and courteous. Disruptive and disrespectful behavior, such as talking out of turn, listening to music, using electronic devices for non-class purposes, sleeping through class, and leaving early without first notifying the instructor, will negatively affect your grade.

I post handouts that outline the problems for each class on the course website before lecture, and I post lecture slides on the website after lecture for you to review. I share the slides to supplement, not to replace, note-taking in class. Independent note-taking is an important skill that you should work to develop throughout your university career. However, slides will often contain formulas, figures, and tables that you may want to refer back to when reviewing the material.

Lab Sessions:
This course also incorporates both weekly recorded lab sessions and in-person lab meetings.

Lab sessions will be used to teach R content and support the lecture material. Similar to the lectures, asynchronous recorded lab sessions will be posted on eClass. I will post recorded segments on the lab material, along with R code and R exercises. I expect you to view this material before lab sessions on Monday. In addition to the recorded lab content, you will also have weekly in-person lab meeting with your TAs.

Weekly lab meetings will be used to review R exercises and homework problem sets. These will meet in Tory B-39. The first hour of your lab session will be a meeting where TAs will either work through R exercises with you or review homework problem sets, depending on the week. The last 50 minutes will then be reserved for TA office hours. TAs will be available to answer questions during this time. Appointments are recommended. Lab meetings are optional, but I encourage you to attend.

Teaching & Learning in a Time of COVID-19

Even though we may want to be done with it, the COVID-19 global pandemic has greatly changed how we work, study, and interact. And, it is definitely not done with us. We must still take precautions to limit the spread of COVID-19. What does this mean for us? First, if you are sick, stay home until your symptoms subside. Second, get vaccinated, if you are not already. Third, wear a mask (N95/99 or KN95 are preferred) when you're indoors. Masks are a great way to protect yourself and others. Finally, I know that many of you might be struggling with other responsibilities, anxieties, and hardships that can limit your course participation and performance. However, I also know that you are here to get an education and learn. I have, therefore, worked to create a balance in this course that allows for flexibility within an environment that supports my course goals and objectives for you.

Course Policies

Be respectful. Be honest. Be kind.

Contacting Me:
I highly recommend bringing any questions you have to lectures or labs or posting them within the appropriate eClass discussion forum. However, if you have a personal question that can be answered with a couple sentences and this question has not already been answered on the syllabus or course website, you may contact me through email. If your question requires a more detailed or lengthy response, I suggest that you raise the question in class, attend my office hours, or make an appointment to meet with me. Please be aware that I check email from 9:00-5:00 on weekdays but not on weekends.

Email Etiquette:
Remember that email communication for all courses should be formal and professional. Make sure to use proper spelling, grammar, and punctuation.

Absences and Missed Assignments:
You are not required to contact me if you miss a weekly lecture or lab session. However, please contact me or your TA as soon as possible if you are unable to complete an assignment on-time so that we can discuss arrangements for submitting the assignment. I would like to avoid late penalties this semester if possible and I will work with you to set up a plan for turning in assignments if you fall behind. I do recognize, though, that late penalties may be necessary in some situations.

As per the University of Alberta Calendar: *Excused absence for a missed exam is not automatic and is granted at the discretion of the instructor (in the case of term exams) or the student's Faculty (in the case of final exams). Instructors and Faculties are not required to grant excused absences for unacceptable reasons that include, but are not limited to personal events such as vacations, weddings, or travel arrangements.* ***When a student is absent from a term or final exam without acceptable excuse, a final grade will be computed using a raw score of zero for the exam missed.*** *Any student who applies for or obtains an excused absence by making false statements will be liable under the Code of Student Behaviour.*

Accessibility Resources:
Students who require accommodations in this course due to a disability affecting mobility, vision, hearing, learning, mental, or physical health are advised to discuss their needs with Student Accessibility Resources, SUB 1-80, 492 · 3381 (phone) or 492 · 7269 (TTY).

Electronic Recording of Lectures:
As per the University Calendar: *Audio or video recording, digital or otherwise, of lectures, labs, seminars or any other teaching environment by students is allowed only with the prior written consent of the instructor or as apart of an approved accommodation plan. Student or instructor content, digital or otherwise,created and/or used within the context of the course is to be used solely for personal study, and is not to be used or distributed for any other purpose without prior written consent from the content author(s).*

Academic Integrity:
Per GFC 24.3(2): *The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (www.governance.ualberta.ca) and avoid any behaviour that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.* All students should consult the academic integrity website.

Basic Needs Security:
We learn as whole people. To learn effectively you must have basic security – a roof over your head, a safe place to sleep, and enough food to eat. If you are having trouble with any of those things, please contact the Office of the Student Ombuds or the Dean of Students for support. The Campus Food Bank also offers multiple programs to help with food insecurity. Additionally, please talk to me if you are comfortable in doing so. This will enable me to provide any resources that I might possess.

Children and Caregiving Responsibilities:
All breastfeeding babies are welcome in class as often as necessary. For older children and babies, I understand that minor illnesses and unforeseen disruptions in childcare often put parents in tough situations. Although this is not meant to be a long-term childcare solution, occasionally bringing a child to class in order to cover gaps in care is perfectly acceptable. However, please do not let this disrupt the learning of other students. In all cases where babies and children come to class, I ask that you sit close to the door so that you can easily step outside if your little one needs special attention.

Colonial History Acknowledgment:
Before we can talk about sociology or statistics, we must acknowledge that academic institutions and the nation-state itself, are founded upon colonialism and continue to enact exclusions and erasures of Indigenous peoples. The University of Alberta is located in Amiskwacîwâskahikan on Treaty 6 territory, the territory of the Papaschase, and the homeland of the Métis Nation. I know that these words do little to remedy the consequences of colonialism, white supremacy, and the intergenerational trauma that lives on for so many, but I hope that they can be a start.

Learning and Working Environment:
The Faculty of Arts is committed to ensuring that all students, faculty, and staff are able to work and study in an environment that is safe and free from discrimination and harassment. It does not tolerate behavior that undermines that environment.

Course Requirements

Grade Breakdown:
Your grade in this course will be based upon four aspects, each worth a part of the grade:

- Homework Problem Sets: 30% (5 assignments; 6% each)
- Lab Assignments: 20% (2 assignments; 10% each)
- Midterm Exam: 20%
- Final Exam: 30%
- **Total:** 100%

Grading Policy:
Four components constitute your grade for this course: homework problem sets, lab assignments, a midterm exam, and a final exam. If you are having issues keeping up with course work for any reason, notify me as soon as you start to have a problem. We will be more likely to come to an acceptable arrangement if we can attack the problem sooner rather than later. Counseling and Clinical Services are also available.

Homework Problem Sets:
You will have five homework problem set assignments in this course. Homework problem sets will include computations and written answers with problems similar to those in lecture. Each homework problem set is worth 6% of your final grade for a total of 30%. Homework problem sets must be handwritten (not typed) and submitted to eClass as pdf files. They can be completed on paper by hand and scanned or photographed to create pdf files using Apps, such as Scannable (iOS) or Genius Scan (Android). They can also be completed by hand electronically using a stylus and saved as pdf files. Homework problems sets must be uploaded to the appropriate eClass assignment page by Friday at 11:59pm on the week they are assigned.

Lab Assignments:
You will have two lab assignments to complete in this course. The lab assignments will involve analyzing data in R and reporting your results in a clear and organized manner. Each lab assignment is worth 10% of your final grade for a total of 20%. Lab assignments must be typed and submitted as R Markdown files, including both code and output. Lab assignments must be uploaded to the appropriate eClass assignment page by Friday at 11:59pm on the week they are assigned. The final lab assingment is an exception. It is due on Thursday becaust that is the last day of classes this semester.

Midterm Exam:
You will have one closed-book multiple choice midterm exam in this course. Example exam questions will be reviewed in class and made available on the course website. The exam is worth 20% of your final grade.

Final Exam:
You will have one open-book final exam in this course. The final exam will include both computations and written answers. The final exam will be cumulative and take place during the final examination period. You will receive a copy of the final exam 48 hours before the given exam time. It must then be submitted to eClass by 11:59pm on the given final exam day (Mon., December 19, 2022). The exam is worth 30% of your final grade.

Grade Conversion Scale:

Descriptor	Percentage Grade	Letter Grade	Grade Point Value
Excellent	96 - 100	A+	4.0
	91 - 95	A	4.0
	86 - 90	A-	3.7
Good	81 - 85	B+	3.3
	76 - 80	B	3.0
	71 - 75	B-	2.7
Satisfactory	66 - 70	C+	2.3
	62 - 65	C	2.0
	58 - 61	C-	1.7
Poor	54 - 57	D+	1.3
Minimal Pass	50 - 53	D	1.0
Failure	0 - 49	F	0.0

Course Schedule & Readings
(TENTATIVE)

Part 1: Descriptive Statistics

Week 1:

Lecture Topics & Reading:

- **Tuesday:** No Class Yet
- **Thursday:** Welcome to SOC 210!

Lab Topics:

- No Labs

Assignments:

- No Assignments

Week 2:

Lecture Topics & Reading:

- **Tuesday:** Math Review, Statistics, Variables, and Relationships
  - Healey, Prus, and Lieflander: Introduction and Ch. 1
- **Thursday:** Describing Data
  - Healey, Prus, and Lieflander: Ch. 2

Lab Topics:

- No labs

Assignments: *Due Friday Sept. 9th by 11:59pm*

- Homework Problem Set #1

Week 3:

Lecture Topics & Reading:

- **Tuesday:** Measures of Central Tendency
  - Healey, Prus, and Lieflander: Ch. 3
- **Thursday:** Measures of Dispersion
  - Healey, Prus, and Lieflander: Ch.3

Lab Topics:

- Introduction to R (view recordings)
- R Exercises (complete exercises during Monday lab)

Assignments:

- No assignments

Week 4:

Lecture Topics & Reading:

- **Tuesday:** The Normal Curve
  - Healey, Prus, and Lieflander: Ch. 4
- **Thursday:** Probability and Sampling
  - Healey, Prus, and Lieflander: Ch. 5

Lab Topics:

- Homework Problem Set #1 Review

Assignments: *Due Friday Sept. 23rd by 11:59pm*

- Homework Problem Set #2

Part 2: Inferential Statistics

Week 5:

Lecture Topics & Reading:

- **Tuesday:** Estimation Procedures
  - Healey, Prus, and Lieflander: Ch. 5
- **Thursday:** Hypothesis Testing (One Sample)
  - Healey, Prus, and Lieflander: Ch. 10 (Ch. 7 in older editions)

Lab Topics:

- Descriptive Statistics in R (view recordings)
- R Exercises (complete exercises during Monday lab)

Assignments:

- No Assignments

Week 6:

Lecture Topics & Reading:

- **Tuesday:** Hypothesis Testing (One Sample)
  - Healey, Prus, and Lieflander: Ch. 10 (Ch. 7 in older editions)
- **Thursday:** Hypothesis Testing (Two Samples)
  - Healey, Prus, and Lieflander: Ch. 11 (Ch. 8 in older editions)

Lab Topics:

- Homework #2 Review

Assignments: *Due Friday Oct. 7th by 11:59pm*

- Homework Problem Set #3

Week 7:

Lecture Topics & Reading:

- **Tuesday:** Estimation and Hypothesis Testing
  - Healey, Prus, and Lieflander: Chs. 5, 6, 10, 11
- **Thursday:** Midterm Exam Review

Lab Topics:

- No labs

Assignments:

- No Assignment

Week 8:

Lecture Topics & Reading:

- **Tuesday:** Midterm Exam *(Oct. 18th)*
- **Thursday:** Bivariate Tables and ANOVA
  - Healey, Prus, and Lieflander: Ch. 12 (Ch. 9 in older editions)

Lab Topics:

- Homework #3 Review
- Time to ask questions about midterm exam

Assignments:

- No Assignment

Week 9:

Lecture Topics & Reading:

- **Tuesday:** Chi-square
  - Healey, Prus, and Lieflander: Ch. 7 (Ch. 10 in older editions)
- **Thursday:** Lab Assignment Discussion

Lab Topics:

- Hypothesis Testing in R (view recordings)
- R Exercises (complete exercises during Monday lab)

Assignments: *Due Friday Oct. 28th by 11:59pm*

- Lab Assignment #1

Part 3: Measures of Association

Week 10:

Lecture Topics & Reading:

- **Tuesday:** Bivariate Measure of Association for Nominal Variables
  - Healey, Prus, and Lieflander: Ch. 8 (Ch. 11 in older editions)
- **Thursday:** Bivariate Measure of Association for Ordinal Variables
  - Healey, Prus, and Lieflander: Ch. 9 (Ch. 12 in older editions)

Lab Topics:

- ANOVA and Chi square in R (view recordings)
- R Exercises (complete exercises during Monday lab)

Assignments: *Due Friday Nov. 4th by 11:59pm*

- Homework Problem Set #4

Week 11:

READING WEEK!! – No classes or lab sessions.

Week 12:

Lecture Topics & Reading:

- **Tuesday:** Association, Correlation, and Bivariate Regression
  - Healey, Prus, and Lieflander: Ch. 13
- **Thursday:** Association, Correlation, and Bivariate Regression
  - Healey, Prus, and Lieflander: Ch. 13

Lab Topics:

- Homework Problem Set #4 Review

Assignments:

- No Assignment

Week 13:

Lecture Topics & Reading:

- **Tuesday:** Partial Correlation
  - Healey, Prus, and Lieflander: Ch. 14
- **Thursday:** NO CLASS

Lab Topics:

- Association and Regression in R (view recordings)
- R Exercises (complete exercises during Monday lab)

Assignments:

- No Assignments

Week 14:

Lecture Topics & Reading:

- **Tuesday:** Multiple Regression
  - Healey, Prus, and Lieflander: Ch. 14
- **Thursday:** Additional Issues in Statistics
  - Fry, Hannah. 2019. "What Statistics Can and Can't Tell Us about Ourselves." The New Yorker. *Link*

Lab Topics:

- R Exercises (complete exercises during Monday lab)

Assignments: *Due Friday Dec. 2nd by 11:59pm*

- Homework Problem Set #5 Due

Week 15:

Lecture Topics & Reading:

- **Tuesday:** Final Exam Review
- **Thursday:** NO CLASS

Lab Topics:

- Review Homework Problem Set #5

Assignments: *Due THURSDAY Dec. 8th by 11:59pm*

- Lab Assignment #2 Due

Finals Week:

Final Exam Due Date: Monday, December 19, 2022 by 11:59pm

SOC 210: Course Schedule FALL 2022

Week (Mon. - Sun.)	General Topic	Labs - Monday		Lecture - Tuesday		Lecture - Thursday		Assignments (Due Fridays)
		Prerecorded Lab Sessions	TA Lab Sessions	Lecture Topic	Reading	Lecture Topic	Reading	
Week 1 08.29 - 09.04	Descriptive Statistics	----------	**NO LABS**	**NO CLASS**		1. Welcome to SOC 210!		----------
Week 2 09.05-09.11		----------	**NO LABS**	2. Welcome, Math Review, and Variables	Ch. 1	3. Describing Data	Ch. 2	HW #1 (Sept. 9th)
Week 3 09.12 - 09.18		Introduction to R	R Exercises	4. Measures of Central Tendency	Ch. 3	5. Measures of Dispersion	Ch. 3	----------
Week 4 09.19 - 09.25		----------	HW #1 Review	6. The Normal Curve	Ch. 4	7. Probability and Sampling	Ch. 5	HW #2 (Sept. 23rd)
Week 5 09.26 - 10.02	Inferential Statistics	Descriptive Statistics in R	R Exercises	8. Estimation Procedures	Chs. 5-6	9. Hypothesis Testing (One Sample)	Ch. 10	----------
Week 6 10.03 - 10.09		----------	HW #2 Review	10. Hypothesis Testing (One Sample)	Ch. 10	11. Hypothesis Testing (Two Samples)	Ch. 11	HW #3 (Oct. 7th)
Week 7 10.10 - 10.16		----------	**NO LABS**	12. Estimation and Hypothesis Testing	Chs. 5, 6, 10, 11	13. Midterm Exam Review	----------	----------
Week 8 10.17 - 10.23		----------	HW #3 Review	**MIDTERM EXAM (Oct. 18th)**	----------	14. Bivariate Tables and ANOVA	Ch. 12	----------
Week 9 10.24 - 10.30		Hypothesis Testing in R	R Exercises	15. Chi-square	Ch. 7	Lab Assignment Discussion / Working with R	----------	Lab #1 (Oct. 28th)
Week 10 10.31 - 11.06	Measures of Association	ANOVA and Chi-square in R	R Exercises	16. Measures of Association for Nominal Variables	Ch. 8	17. Measures of Association for Ordinal Variables	Ch. 9	HW #4 (Nov. 4th)
Week 11 11.07 - 11.13		**READING WEEK - NO CLASS**						
Week 12 11.14 - 11.20		----------	HW #4 Review	18. Bivariate Regression Parts 1-3	Ch. 13	18. Bivariate Regression Parts 4-6	Ch. 13	----------
Week 13 11.21 - 11.27		Association and Regression in R	R Exercises	19. Partial Correlation	Ch. 14	**NO CLASS**		----------
Week 14 11.28 - 12.04		----------	R Exercises	20. Multiple Regression	Ch. 14	21. Additional Issues in Stats	----------	HW #5 (Dec. 2nd)
Week 15 12.05 - 12.11		----------	HW #5 Review	22. Final Exam Review	----------	**NO CLASS**		Lab #2 (THURSDAY Dec. 8th)
Finals Weeks	**FINAL EXAM DUE DATE: December 19, 2022 (Monday)**							