SOC 210 (A1): Introduction to Social Statistics
Spring 2018 (20950)
University of Alberta

Instructor: Abu Sadat Nurullah
Email: nurullah@ualberta.ca

Lectures     Labs     Office Hours
Monday & Wednesday     Monday & Wednesday     By Appointment
9:00AM - 11:50AM     1:00PM - 2:50PM     5–29 Tory
Humanities Centre 1-11     Business Basement 18

Required Course Text:

Prerequisite:
SOC 100 or consent of instructor. Note: This course is intended primarily for Sociology students.

Technology Requirements:
You will need access to: (1) a scientific, non-programmable calculator to use in lectures, labs, and exams and (2) the statistical program, SPSS, to complete labs and certain homework assignments. A basic calculator with the ability to take square roots and raise numbers to powers is adequate. You can access SPSS in the lab computers in BUS B 18.

This course utilizes eClass for posting detailed information regarding lab assignments and most of the class materials. I will also make announcements via eClass, including any changes to the schedule, so please check the website regularly. You can access eClass for this course starting May 3, 2018.

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

Course Structure

This course provides a basic overview of statistical concepts and their applications in exploring social phenomena. The classroom discussions and lab sessions mostly follow the structure of the Healey and Prus textbook. We begin with a review of basic math, discussion of variables, and descriptive statistics. During this part of the course, we will learn about different types of variables, frequency distributions, measures of central tendency, and the normal curve. We then focus on inferential statistics which incorporates probability and sampling, estimation procedures, tests of significance and hypothesis testing, bivariate tables, and measures of association.
Course Perspective

Learning statistics is important whether you are conducting research, reading an article, or simply evaluating others’ arguments in the media and elsewhere. However, many students are scared of math, and do not want to approach statistics unless they have to. I should note that this course requires no prior training in statistics. If you know how to add, subtract, divide, multiply, and take exponents and square roots, you can succeed in this course, provided that you work hard.

Statistical knowledge is cumulative in the sense that many concepts and methods build upon previous concepts. Therefore, it is essential for you to attend all lectures and lab sessions for optimal course performance. This course requires your willingness to work hard on unfamiliar materials. You can consult other helpful online resources if necessary.

Course Objectives

The objective of this course is to familiarize you with basic concepts and methods of statistical data analysis in the social sciences. This is achieved by the following learning outcomes upon successful completion of the course.

First, you will be able to describe and explain the basic concepts of sample and population, calculate and interpret measures of central tendency and variability, understand and apply concepts of probability, formulate and test hypotheses in research models, and assess the strength of association between variables, such as computing and interpreting correlation and regression analyses. Second, you will be equipped with the skill to use SPSS statistical software for basic data analyses. Third, you will have the ability to apply statistical concepts to real world research questions, and to summarize, organize and interpret statistical findings. Finally, you will develop critical thinking and analytical skills to evaluate (sometimes misleading) statistical conclusions.

Correspondence:

Email is the best way to contact me (nurullah@ualberta.ca). Please include “SOC 210” in the subject line of your emails. I will try to respond within 24 hours, except for weekends. If your question/concern is related to class content and I feel it is one that will benefit others, I will raise your question at the beginning of the next class. I may choose not to answer emails the evening before an exam. Please use your official ualberta email for all correspondence.

If an email response is not detailed/clear enough, you can make an appointment to meet with me. I will often be available after the lab sessions. If you are having difficulty with an assignment or there are serious extenuating circumstances affecting your work, please speak with me as soon as possible.
## Grade Components and Weights

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-term Exam: (Wednesday, May 30)</td>
<td>30%</td>
</tr>
<tr>
<td>Final Exam: (tentatively scheduled for June 14, 2018 (Thursday) @ 11:30 a.m. - check Bear Tracks to confirm)</td>
<td>30%</td>
</tr>
<tr>
<td>Homework Problem Sets: (4 assignments, 5% each, due dates below)</td>
<td>20%</td>
</tr>
<tr>
<td>Major Lab Assignment: (15%, due June 8, Friday, by 4:00 pm)</td>
<td>15%</td>
</tr>
<tr>
<td>Participation Activity (online forum on eClass):</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
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### Exams:

You will have two in-class closed-book exams in this course. Each exam will cover topics that have been taught in lectures and the assigned readings up to the date of the exam. Exams will consist of both multiple choice and written short-answer questions. The mid-term exam will take place on May 30. The Final exam will take place during finals week. Example exam questions will be reviewed in class. Exams are worth 60% of your final grade. A **calculator will be required for the exams** (cell phones will not be allowed). The last scheduled lecture day will be an exam review day, where the topics to be covered will depend on input from the class.

**Note:**

* We may not have time to cover everything in the textbook. It is the responsibility of a student to read the textbook thoroughly. Any changes to the schedule or topic will be mentioned on eClass.

* Grades will be posted on eClass, which students can access individually.

### Homework Problem Sets & Major Lab Assignment:

You will have four homework problem set assignments and one Major Lab assignment in this course. Details about each of the assignments will be made available on eClass. Homework problem sets must be handed in during or at the end of the lab (2:50 PM) on the specified due date. The Major Lab assignment is due on Friday, June 8 by 4:00 pm (you can submit it earlier as well). The major lab assignment will involve analyzing data and reporting your results in a clear and organized manner. Both major lab and homework problem set assignments are worth 35% of your final grade. Late lab assignments will be penalized 10% per day late (excluding weekends); so to be safe, try to have them completed before the due date (always accepted early). For missed assignments, a student will receive a raw score of zero for each assignment missed.
Participation Activity:

Your participation grade is based on your in-class participation during lecture, and your online participation in the discussion forum on eClass. The main goal of the forum activity is to connect what we learn in class to current issues discussed in the media. The activity will involve analyzing a newspaper article that applies statistics in any way. In addition, I expect you to be mentally and physically present and to participate in each lecture and lab session. In-class participation includes speaking up in class, asking and answering questions, and completing group work. I expect you to come to class 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. In-class and online participation is worth 5% of your final grade.

Grading:

Component grades will be added together and calculated as a percentage. Your percentage grade will then be converted to the following four-point scale:

<table>
<thead>
<tr>
<th>Performance</th>
<th>Term Score (%)</th>
<th>Letter Grade</th>
<th>Grade Point Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>95-100</td>
<td>A+</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>90-94</td>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>85-89</td>
<td>A-</td>
<td>3.7</td>
</tr>
<tr>
<td>Good</td>
<td>81-84</td>
<td>B+</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>76-80</td>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>71-75</td>
<td>B-</td>
<td>2.7</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>66-70</td>
<td>C+</td>
<td>2.3</td>
</tr>
<tr>
<td></td>
<td>62-65</td>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>58-61</td>
<td>C-</td>
<td>1.7</td>
</tr>
<tr>
<td>Poor</td>
<td>54-57</td>
<td>D+</td>
<td>1.3</td>
</tr>
<tr>
<td>Minimal Pass</td>
<td>50-53</td>
<td>D</td>
<td>1.0</td>
</tr>
<tr>
<td>Failure</td>
<td>0-49</td>
<td>F</td>
<td>0.0</td>
</tr>
</tbody>
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Note: The following rule is applied when rounding term grades. If a final term grade is on the margin of a cut-off point, it will be raised to the next higher category. For example, if a student’s overall term score is 94.5, the final grade will be 95, and therefore will receive A+ and 4.0 as a final grade. If a student’s overall term grade is 94.4, the score assigned will be 94, and will therefore receive a final grade of A and 4.0, etc.
Lecture Schedule & Readings (Tentative; any changes will be stated on eClass):

**May 7** - Introduction: Why Study Statistics?
   Statistics Basics & Levels of Measurement. *Healey & Prus: Ch. 1*

**May 9** – Percentages, Proportions, and Ratios. *Healey & Prus: Ch. 2*
   Measures of Central Tendency and Dispersion. *Healey & Prus: Ch. 3*

**May 14** - Standardized Scores and the Normal Curve. *Healey & Prus: Ch. 4*

**May 16** - Inferential Statistics: Probability and Sampling. *Healey & Prus: Ch. 5*
   Estimation Procedures. *Healey & Prus: Ch. 6*

**May 21** - Victoria Day, no classes.

**May 23** - Hypothesis Testing: One Sample. *Healey & Prus: Ch. 7*
   Hypothesis Testing: Two Samples. *Healey & Prus: Ch. 8*

**May 28** – Hypothesis Testing: Two Samples (Continued). *Healey & Prus: Ch. 8*
   Hypothesis Testing: ANOVA. *Healey & Prus: Ch. 9*

**May 30** - (first half of class) Mid-term Exam
   Measures of Association, Correlation, Regression. *Healey & Prus: Ch. 13*

**June 4** – Bivariate and Multivariate Regression. *Healey & Prus: Ch. 13 & 14*

**June 6** – Hypothesis Testing: Chi square Test. *Healey & Prus: Ch. 10*
   Bivariate Measures of Association for Nominal Variables. *Healey & Prus: Ch. 11*

**June 11** – Bivariate Measures of Association for Ordinal Variables. *Healey & Prus: Ch. 12*

**June 13** - Review and Catch-up (Content of review will be determined by input from the class)
Lab Schedule:

May 7 - No lab.

May 9 - Introduction to SPSS (Healey & Prus: end of Chapter 2 and Appendix F).

May 14 - Descriptive statistics (Healey & Prus: end of Chapter 3).
   Homework Problem Set #1 due

May 16 – Recoding variables (Healey & Prus: end of Chapters 11 & 12, and Appendix F).

May 21 - Victoria Day, No lab.

May 23 – Z scores and One-sample t-tests (Healey & Prus: end of Chapters 4 and 7).
   Homework Problem Set #2 due

May 28 – Independent samples t-test (Healey & Prus: end of Chapter 8).
   Homework Problem Set #3 due

May 30 - No lab

June 4 - ANOVA (Healey & Prus: end of Chapter 9).

June 6 – Bivariate and Multivariate regression. (Healey & Prus: end of Chapters 13 and 14).

June 8 – Major Lab Assignment due (Friday, by 4 pm)

June 11 - Chi square Test (Healey & Prus: end of Chapters 10 and 11).
   Homework Problem Set #4 due

Sample Exam Questions:

1. How do hypotheses differ from theories?
   a. hypotheses are more speculative
   b. hypotheses are more “testable”
   c. hypotheses are always true
   d. hypotheses are more abstract
2. Which of the following is a continuous variable?
   a. the number of meals you consumed yesterday
   b. the number of children in your family
   c. hours spent watching TV last week
   d. the number of times that you moved in the past five years

3. Forty of every 200 students attend all of their classes. What percentage of the student body attend all of their classes?
   a. 50%
   b. 20%
   c. 5%
   d. 2%

4. What is the median if the scores on a variable are 11, 14, 18, 19, 20, and 25?
   a. 3
   b. 18
   c. 18.5
   d. 17.8
   e. 20

5. Where would the critical region begin in a two-tailed test with the alpha level set at 0.05?
   a. ±2.30
   b. ±1.96
   c. ±1.65
   d. ±2.58

6. Which of the following describes a characteristic of the mean?
   A. The mean is unaffected by extremely high scores in a distribution
   B. The mean is the point of maximized variation in a distribution of scores
   C. The mean is the score that divides a distribution into two equal parts
   D. The mean considers all scores within a distribution

**Course Policies**

**Absences:**

As per the Academic Regulations of the University of Alberta Calendar: Excused absence are not granted automatically and will be considered only for acceptable reasons such as incapacitating mental and/or physical illness, severe domestic affliction, or for circumstances as described in the University’s Discrimination, Harassment and Duty to Accommodate Policy (including religious belief). Unacceptable reasons 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.

If you miss the mid-term exam or are unable to complete assignments on the appropriate date because of an incapacitating illness, you must contact me *within two business days* or as soon as you are physically able to do so. To apply for an excused absence for a missed midterm, you should complete appropriate documentation. Any of the following is acceptable if you miss the mid-term exam due to illness:

- “[University of Alberta Medical Statement](https://www.ualberta.ca/health-medical/medical-care/student-medical-statement.html)” signed by a doctor (not required, but is accepted if provided in lieu of other documents)
- “[Medical Declaration Form for Students](https://www.ualberta.ca/health-medical/medical-care/student-medical-declaration-form.html)” (for Faculty of Arts students)
- “Statutory Declaration” (for students in Faculties other than Arts, to be obtained from home Faculty or the Office of the Registrar)

**Note:** The instructor reserves the right to require a student to write an assignment for missed mid-term exam, or have the weight of the missed mid-term exam transferred to final exam. There is NO make-up exam. Students granted an excused absence from a mid-term exam must consult the instructor for appropriate course of action.

**Deferred Final Exam:**

If you fail to write the final exam, you must formally apply to your Faculty office *within two business days* following the missed final exam in order to be considered for a deferred final examination. The decision to grant a deferred final exam is not the instructor’s. Deferred examinations are intended to accommodate students who have experienced an incapacitating illness or severe domestic affliction; applications based on minor or inconsequential ailments will not be approved.

As per the [Academic Regulations](https://www.ualberta.ca/about/university-calendars/academic-regulations.html) of the University of Alberta Calendar: *A deferred final examination will not be approved if a student (a) has not been in regular attendance where attendance and/or participation are required, and/or, (b) excluding the final exam, has completed less than half of the assigned work.*

**Disability Accommodations:**

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 Services](https://www.ualberta.ca/accessibility), 1-80 Students’ Union Building, 492.3381 (phone) or 492.7269 (TTY). Students registered with SAS who will be using accommodations in the classroom, or who will be writing exams through SAS, are required to provide a “Letter of Introduction.”
Electronic Recording of Lectures:

As per the Academic Regulations of the University of Alberta 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 a part 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).

Plagiarism and Cheating:

As per the Academic Regulations of the University of Alberta Calendar: 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.

Classroom Behaviour:

I expect you to be mentally and physically present and to participate in each lecture and lab session. I expect you to come to class with a calculator, writing tools (e.g., paper), and prepared to work on example problems together. Use of cell phones, arriving late/ packing up early, and side conversations are all disruptive to the class. Be respectful and courteous to your colleagues by not engaging in these behaviours. If you disrupt the class due to the use of an electronic device (e.g., cell phones, texting, surfing the net, emailing, listening to music), you may be asked to leave the classroom. It is safest to simply turn off your cell phone during classes and exams.