SOC 210 (A1): Introduction to Social Statistics
Spring 2016 (28234)
University of Alberta

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

Lectures
Monday & Wednesday
9:00AM - 11:50AM
HC 1-11

Labs
Monday & Wednesday
1:00PM - 2:50PM
BUS B 18

Office Hours
By Appointment
4–22 Tory

Required Course Text:

Note: The second (i.e., 2013) edition of the book is also acceptable.

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

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 some class materials. I will also make announcements via eClass, so please check the website regularly. You can access eClass for this course starting May 4, 2016.

Policy about course outlines can be found in §23.4(2) 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.
### Grade Components and Weights

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-term Exam: (Wednesday, June 1)</td>
<td>30%</td>
</tr>
<tr>
<td>Final Exam: (tentatively scheduled for June 16, 2016 (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 Assignments: (2 labs, 10% each, both due June 15)</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

### 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 June 1. 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 (no phones). 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.
* Mid-term and final exams will not be returned to students. If you want to view/check the mid-term exam, you need to make an appointment with me.

### Lab Assignments:

You will have four homework problem set assignments and two major lab assignments 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 assignments are due at the end of lab on June 15, but you can submit them earlier as well. The major lab assignments will involve analyzing data and reporting your results in a clear and organized manner. Late lab assignments will be penalized, so to be safe, try to have them completed before the due date (always accepted early). Both major lab and homework problem set assignments are worth 40% 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>93-100</td>
<td>A+</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>87-92</td>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>83-86</td>
<td>A-</td>
<td>3.7</td>
</tr>
<tr>
<td>Good</td>
<td>79-82</td>
<td>B+</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>75-78</td>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>71-74</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 92.5, the final grade will be 93, and therefore will receive A+ and 4.0 as a final grade. If a student’s overall term grade is 92.4, the score assigned will be 92, and will therefore receive a final grade of A and 4.0, etc.

* If you complete an assigned course requirement (i.e., write an exam), you cannot - after the fact - request a grade adjustment due to extenuating circumstances. 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.

* I am willing to discuss assigned grades. If you want a grade to be reassessed, review the assignment carefully; come with specific questions and carefully thought-out reasons for the re-assessment. Please note that grade re-assessments may result in a lower grade, a higher grade or, no change in grade.
Lecture Schedule & Readings:

May 9 - Introduction: Why Study Statistics?
   Statistics Basics & Levels of Measurement. Healey & Prus: Ch. 1

May 11 – Percentages, Proportions, and Ratios. Healey & Prus: Ch. 2
   Measures of Central Tendency and Dispersion. Healey & Prus: Ch. 3

May 16 - Standardized Scores and the Normal Curve. Healey & Prus: Ch. 4

May 18 - Inferential Statistics: Probability and Sampling. Healey & Prus: Ch. 5
   Estimation Procedures. Healey & Prus: Ch. 6

May 23 - Victoria Day, no classes.

May 25 - Hypothesis Testing: One Sample. Healey & Prus: Ch. 7

May 30 – Hypothesis Testing: Two Samples. Healey & Prus: Ch. 8
   Hypothesis Testing: ANOVA. Healey & Prus: Ch. 9

June 1 - (first half of class) Mid-term Exam
   Hypothesis Testing: Chi square Test. Healey & Prus: Ch. 10

June 6 – Bivariate Measures of Association for Nominal Variables. Healey & Prus: Ch. 11

June 8 – Bivariate Measures of Association for Ordinal Variables. Healey & Prus: Ch. 12
   Measures of Association, Correlation. Healey & Prus: Ch. 13

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

June 15 - Review and Catch-up (Content of review will be determined by input from the class)
Lab Schedule:

May 9 - No lab.

May 11 - Introduction to SPSS (Healey & Prus: end of Chapter 2 and Appendix F).

May 16 - Descriptive statistics (Healey & Prus: end of Chapter 3).
   Homework Problem Set #1 due

May 18 – Recoding variables (Healey & Prus: end of Chapters 11 & 12, and Appendix F).

May 23 - Victoria Day, No lab.

May 25 – Z scores and One-sample t-tests (Healey & Prus: end of Chapters 4 and 7).
   Homework Problem Set #2 due

May 30 – Independent samples t-test and ANOVA (Healey & Prus: end of Ch. 8 and 9).
   Homework Problem Set #3 due

June 1 - No lab

June 6 - Chi square Test (Healey & Prus: end of Chapters 10 and 11).
   Homework Problem Set #4 due

June 8 – Correlation and regression. (Healey & Prus: end of Chapter 13).

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

June 15 – Major Lab Assignments (both) 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 §23.5.6 of 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.

To apply for an excused absence for a missed midterm, you must notify me by e-mail **within two working days** of the missed mid-term exam. If you miss an exam or are unable to complete assignments on the appropriate date because of an incapacitating illness, you may complete one of the following: a University of Alberta Medical Statement signed by a doctor, a Medical Declaration Form for students in Arts, or a Statutory Declaration for students from other Faculties to be completed by your Faculty office or the Registrar’s Office. You should submit appropriate documentation for other acceptable absences. This could include a copy of the death certificate, a letter from the church or pastor for a religious conflict, or a copy of the accident report for a car accident. For other reasons, please consult with me for appropriate documents.

**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 working 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 §23.3(2)c of the University 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, 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 §24.3 of the University Calendar: Audio or video recording 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. Recorded material 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:
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. GFC 23.4(2). Please see the following website for more details: www.osja.ualberta.ca/en/Students.aspx

Classroom Behavior:
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, and paper, prepared to work on example problems together. Cell phones, electronic devices, 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.

Furthermore, if you engage in disruptive behaviour during an exam, in addition to those mentioned above (e.g., your phone starts ringing or loud vibration-sound comes from your cell phone), you may be asked to leave the exam. It is safest to simply turn off your cell phone during classes and exams.

If you are expecting a phone call during an exam or in class due to a family concern, please contact me in advance.