

## **SOCY 2061: INTRODUCTION TO SOCIAL STATISTICS, SPRING 2015**

**-- Tues,Thurs: 8:00-9:15 am, ROOM: BESC-185 --**

**Instructor:** Philip Pendergast

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**Office Hours:** Tues, Thurs: 10:00-11:30am Location TBD, or by appointment

### **Text:**

Leon-Guerrero, Anna, and Frankfort-Nachmias, Chava. 2015. Essentials of Social Statistics for a Diverse Society. 2nd Edition. Los Angeles: SAGE. ISBN: 978-1-4833-5949-6

### **Course Description:**

Despite steady growth in work that relies on ethnographic and other qualitative methods (e.g. structured interviews, participant observation), social science research in the 21st century continues to be largely dominated by quantitative approaches (e.g., statistical analyses) to understanding social phenomena. This course serves as an introduction to understanding, using, and drawing conclusions from these methods, with an explicit focus on real-life applications that will make you a more critical consumer of knowledge and prepare you for future careers in the fields of sociology, psychology, geography, and education. Even for those who do not plan to pursue jobs directly related to these fields, statistical training has become a valuable trait for all employers in an age where data and technology proliferate.

To understand the state of the world beyond theory and begin to address social problems, it is essential for social scientists to practice the art of using and interpreting statistics. Like real social science researchers, we will learn to draw on data from large national surveys, public opinion polls, and census data to document, describe, and explain a diversity of social issues. The range of issues available for study are limitless-- public views on abortion or sexual minorities, the socioeconomic impacts of systemic sexism and racism, the effectiveness of restorative justice programs, health impacts of smoking, alcohol abuse, and obesity, residential segregation, migration, trends in life expectancy, victim race in the use of excessive police force, school shootings, opinions about gun control, and many other topics are especially relevant and in need of rigorous scientific investigation today.

Specifically, this course focuses on (1) gaining a basic understanding of descriptive and inferential statistics and (2) applying statistical techniques.

- 1) Descriptive statistics are methods that allow you to succinctly summarize information measuring individual and social characteristics (e.g., socioeconomic status, self-esteem, residential segregation). Primarily, we will focus on the concepts of *central tendency* (e.g., mean, mode, median) and *dispersion* (e.g., standard deviation, variance, inter-quartile range).
- 2) Inferential Statistics allow us to test theories by extrapolating from data to make estimates about a *population* (e.g., this entire class) based on a *sample* (e.g., 10 or 12 students in the class). To accomplish this, we will use concepts from probability theory to introduce you to the idea of hypothesis testing. By learning and applying basic statistical techniques such as estimating confidence intervals, interpreting coefficients, and comparing test statistics to critical *t* and *z* values, you will learn techniques and concepts that underlie nearly all scientific research (social or otherwise).

### **Course Requirements and Grading:**

### ***Participation, In-Class Assignments, & Attendance- 30%***

Actively participating and completing practice problems in class is essential to understanding the statistical concepts in this course, and thus accounts for a large portion of the credit that you can earn. In my experience, this is the **ONLY** way to learn and truly understand this material, and that is why I have placed an unusual emphasis on participation. During the semester, in-class assignments and assessments will be collected and graded for completion (not correctness), which cannot be made up. Essentially, this amounts to my taking attendance, but I will not formally do so and may not have in-class assignments every day. Please note that I understand you may need to miss class for unforeseen reasons, so I will drop 3 in-class assignments at the end of the semester before calculating everyone's participation grades.

Also, it is important to note that at any time I reserve the right to make changes to the course syllabus, and these changes will often be announced **IN CLASS ONLY**-- if you happen to miss class it will be **YOUR** responsibility to learn about these changes and any other missed information from your classmates. So go to class. I've been in school for a long time and have realized that it is almost impossible to fail a course (especially this one!) if you go to class and at least try to do your work. Please make at least this minimal commitment to the course, as I solemnly swear that I will not help you out at the end of the semester if you find that you are failing and did not at least 1) come to class and 2) try to complete assignments.

### ***Homework Assignments- 25%***

During the semester, you will be asked to complete weekly homework assignments. These are meant to give you more practice with the course concepts and techniques, but will also help me gauge what we can do to better help you learn the material during lecture. For this reason, please feel free to write comments to me on your homework, and I will do my best to look these over and take them into consideration when it comes to explaining difficult concepts or slowing down the course schedule to devote extra time to certain concepts. The assignments themselves will be collected in class and graded for both completion (50%) and correctness (50%). Late work will be accepted, but only graded for correctness, meaning that the maximum score for late work will be 50%.

### ***Exams- 30% TOTAL***

There will be two midterms (10% EACH) and one final, non-cumulative exam (10%) that will be designed to test your knowledge of the key concepts that we cover in the class. These will not be the kinds of tests where you are expected to memorize a bunch of terms that are italicized in your book. They will mostly consist of short answer problems where you will be asked to interpret something or solve a mathematical problem with some kind of real-life application. It will be very important on these exams for you to have kept up with your assigned readings, homework, and in-class assignments, as they will provide a blueprint for you can expect to see on the tests.

For the exams you will be allowed two "cheat sheets" of hand-written notes that you must turn in with your test. These notes will make up 5% of your grade on each exam, so please remember to write them up and turn them in. Otherwise, the exams will be closed-book and note.

**Important:** Missed exams will result in a score of 0 and cannot be made up. If you know that you cannot attend one of the exams, please let me know within the first 2 weeks of the semester and we can set up an alternate time. Other accommodations (e.g. for unforeseeable sickness, family tragedy) may be entertained with proper documentation, but there is no guarantee that I will honor them so **PLAN TO MAKE IT TO ALL EXAMS IF YOU WANT TO DO WELL IN CLASS.**

### ***Group Project- 15%***

We will form small groups early in the semester that will serve as collaborative partnerships for completing in-class assignments. As we progress in the semester, your group will work together to prepare a research presentation on some subject that you all find interesting. The presentation will include some descriptive analysis, a literature review, and hypothesis testing-- mirroring the process of writing a publishable research paper or honors/ master's thesis. These presentations are scheduled for the last week of class, but I will be regularly checking in on your progress and periodically making time in class for you to all work together. More detail regarding the requirements of this assignment will be discussed in the coming weeks.

### ***Reading Assignments***

While I will not be formally giving "reading quizzes" or otherwise assigning you a grade for reading, it will be very important for you to keep up with your assigned reading throughout the semester. I will deliberately avoid covering some subjects thoroughly in lecture so that you must supplement what you hear from me with what you are expected to read in order for you do well on the homework assignments and exams. My expectation is that you will have completed all assigned readings before class on the day that they are due-- if you fail to do so, you may find it difficult to understand what we are talking about in lecture or how to approach the in-class assignments and homework, which ultimately puts you at a disadvantage in the course.

When weeks have one chapter assigned, you should read the assigned chapter BEFORE class on Tuesday. In weeks with two chapters the first will be due before class on Tuesday and second will be due before class on Thursday.

### ***Tools of the Trade:***

You are expected to bring a writing instrument, paper, and a calculator to class. The calculator needs to have basic math functions, along with the ability to square and take the square root of numbers. I have seen basic scientific calculators that can be purchased for less than \$10 pretty much anywhere that you get school supplies. For instance, amazon.com currently has the Texas Instruments TI-30Xa scientific calculator for sale for \$8.98, which is a very nice calculator for the price of a 6-pack of beer.

I know that you would like to use your phones instead of calculators, but it is too tempting to search the Internet, check your Twitter, or text your classmates during exams and lecture so I have a **NO PHONES POLICY IN CLASS**. You will learn more this way and it is easier to keep the exams fair without this distraction.

### ***Grades:***

Final grades are based on your participation/in-class assignments (30%) homework (25%), exams (30%), and group presentation (15%).

Grades will be assigned as follows:

<b>Grade</b>	<b>Percentage</b>
A	100-93%
A-	92-90%
B+	89-87%
B	86-83%
B-	82-80%
C+	79-77%
C	76-73%

C-	72-70%
D+	69-67%
D	66-63%
D-	62-60%
F	59-0%

### **Online Content:**

Important course-related content will be available online on the course D2L site, including the syllabus, any additional readings, homework assignments, and grades. Try to check the site at least once a week to be sure you have the latest content. I will post the lecture slides at the end of every week on D2L. I do not post them prior to lecture simply because I sometimes do not finalize things until the start of class.

### **Communications:**

In addition to posting homework and readings on the website, I will email these assignments to you using your University of Colorado email address. Be sure to check this email frequently so that you do not miss these important communications.

Please remember that email is an official form of communication-- when you write to me please use language and wording that is respectful and consistent with how you would address me in class. **IN ALL EMAIL EXCHANGES, PLEASE INCLUDE “SOCY2061” IN THE SUBJECT LINE** (e.g. “SOCY2061: Exam 1”, NOT “Exam 1”).

### **Policies for Students with Special Needs:**

If you qualify for accommodations because of a disability, please submit to me a letter from Disability Services at the beginning of the semester so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities. Contact: 303-492-8671, Center for Community N200, and/or go to:  
<http://www.colorado.edu/disabilityservices>

If you are suffering from a temporary medical condition or injury and you need special accommodations, please see the guidelines at this address before contacting me:  
<http://www.colorado.edu/disabilityservices/go.cgi?select=temporary.html>

### **Religious Holidays:**

In accordance with campus policy, I will make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams or assignments. Please contact me regarding any conflicts between religious observance dates and course examinations or assignments ASAP(!). You must communicate religious observances to me at least one week in advance (preferably sooner) for any accommodations for missed assignments and exams.

For full details on university policies regarding religious holidays, see:  
[http://www.colorado.edu/policies/fac\\_relig.html](http://www.colorado.edu/policies/fac_relig.html)

### **Discrimination and Harassment:**

I will not tolerate any form of discrimination or harassment, and any violators will be dealt with accordingly. If you believe you have been the subject of sexual harassment or discrimination or harassment based on your race, ethnicity, national origin, sex, age, disability, creed, religion, sexual orientation, or veteran status, you should (a) speak with your instructor and/or (b) directly

contact the Office of Discrimination and Harassment (ODH) at 303-492-2127 or the Office of Student Conduct (OSC) at 303-492-5550.

Information about the ODH, university policies on discrimination/harassment, and the campus resources available to assist individuals regarding discrimination or harassment can be obtained at <http://www.colorado.edu/odh>

### **Honor Code Polices:**

All students of the University of Colorado at Boulder are responsible for knowing and adhering to the academic integrity policy of this institution. Violations of this policy may include: cheating, plagiarism, aid of others, academic dishonesty, fabrication, lying, bribery, and threatening behavior. All incidents of academic misconduct shall be reported to the Honor Code Council ([honor@colorado.edu](mailto:honor@colorado.edu); 303-735-2273). Students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from the faculty member (including but not limited to receiving a zero for the exam or assignment, and receiving a failing grade for the course) and non-academic sanctions (including but not limited to university probation, suspension, or expulsion). Other information on the Honor Code can be found at: <http://www.colorado.edu/policies/honor.html> and at <http://www.colorado.edu/academics/honorcode/>

The Honor Code is in effect at all times. Please turn in your own work, cite references correctly, and all will be fine!

### **Tentative Course Schedule**

Exams will be held on the days listed, but all other materials may vary according to your homework comments/suggestions and my perceptions of needing to speed up or slow down and devote more time to certain topics.

<b>Dates</b>	<b>Topic</b>
1/13	Introductions, Syllabus, and Small Group Formation
1/15	Chapter 1: Why Statistics?
1/20-1/22	Chapter 2: Organizing and Visualizing Data
1/27-1/29	Chapters 3-4: Variation and Central Tendency
2/3-2/5	Chapter 5: The Normal Distribution
2/10-2/12	Chapter 6: Sampling and Sampling Distributions
2/17	Review
2/19	<b>EXAM 1: Describing Data</b>
2/24-2/26	Chapter 7: Estimation and Confidence Intervals; Begin Group Work
3/3-3/5	Chapter 8: Hypothesis Testing, T and Z-Scores

3/10-3/12	Chapter 9: Bivariate Tables
3/17	Review
3/19	<b>EXAM 2: Testing Hypotheses and Basic Data Analysis</b>
3/23-3/27	SPRING BREAAAAAAAAAAAAAK!!!!!!!!!!!!!!!!!!!!
3/31-4/2, 4/7	Chapter 10: Analysis of Variance (ANOVA)
4/9, 4/14-4/16	Chapter 11: Regression
4/21-4/23	Readings TBA; Work on Group Project
4/28-4/30	Group Presentations and Final Review
5/6	<b>FINAL EXAM: ANOVA &amp; Regression (7:30pm-10pm)</b>