

SOC 106: Intermediate Social Statistics

Spring 2017 (April 3 – June 15)

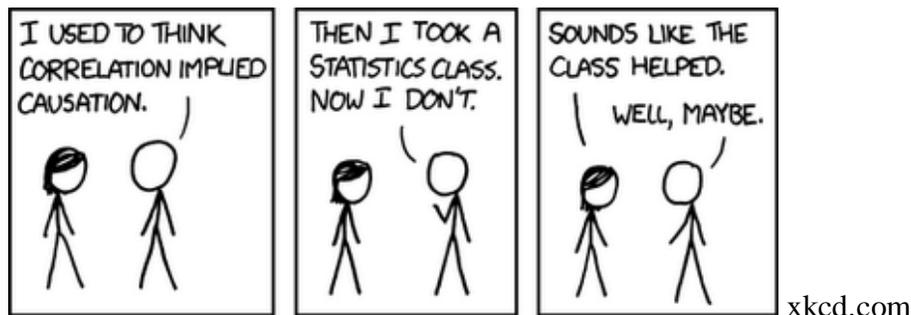
Lecture: Tues. & Thurs., 12:10-2:00, 141 Olson Hall

Required Lab: Section 01: Fri. 1:10-2:00, 93 Hutchison

Section 02: Fri. 2:10-3:00, 93 Hutchison

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Course description

This course provides an introduction to the basic concepts and skills involved in performing statistical analyses of quantitative social science data. The first part of the course will introduce descriptive statistics. These measures of central tendency, variation, and distribution allow social scientists to *describe* social phenomena. The focus will then proceed to inferential statistics, which are used by social scientists to *infer* types of relationships between two or more variables. The concepts and skills learned in this part of the course include calculation of measures of association, calculation of confidence intervals, and hypothesis testing, including an introduction to basic regression methods. Understanding of the statistical concepts will be facilitated by hands-on data analysis using Stata statistical software.

Prerequisites

SOC 46B, STAT 13, or equivalent introductory statistics course. I will assume students have prior experience in at least an introductory statistics course and a basic understanding of statistical concepts prior to enrollment in this course.

Readings

Required text: Agresti, Alan and Barbara Finlay. 2009. *Statistical Methods for the Social Sciences*, 4th ed. Pearson, Upper Saddle River, NJ.

- All assigned readings refer to this text, and should be completed by the date indicated on this syllabus

Other Required Materials

- Scientific calculator (does not need to have graphing capabilities; an ordinary calculator with the “√” [square root] function will suffice)
 - Students are expected to bring a calculator to class every day
 - Students must have a stand-alone calculator. **Under no circumstances** may a student use the calculator function on another device (e.g., phone, tablet computer) on exams.

Course Objectives

1) The first goal of the course is to develop the tools needed to analyze and draw conclusions from quantitative social science data. Students will learn both the mathematical and theoretical foundations of basic descriptive and inferential statistics. Students will become familiar with the types of sociological research questions that can be answered using social survey data, as well as the limits of quantitative statistical analysis.

2) The second goal of the course is to prepare students to become knowledgeable “consumers” of statistical information. Students will be equipped to understand and evaluate statistical analyses used in contemporary social scientific research, which is essential to a career in the social sciences or to continuing studies at the graduate level. In a more general yet no less important sense, the familiarity with statistics gained in this course will allow students to be better-informed, more engaged citizens.

Course Requirements

Homework

Learning statistical concepts and skills requires continual practice. To that end, students will be given 6 homework assignments worth 20 points each, which will typically consist of problems from the end of the textbook chapters and additional Stata analysis problems. *These problem sets will be due at the beginning of the class period on the specified due date.* Homework assignments turned in late will be assessed a 5-point penalty for each full or partial day that elapses beyond the due date. Graded assignments will be returned as soon as possible to provide students timely feedback on difficulties they may be encountering. Students’ single lowest homework score will be dropped and the final homework grade will be calculated based on a maximum of 100 points. Students should be sure to **show all work** for problems that involve calculation to receive full credit.

Exams

There will be 2 exams worth 50 points each. Exams will not be cumulative; exam 2 will only evaluate students on the material introduced since exam 1. However, as is the case with all mathematics-related courses, each piece of knowledge gained lays the groundwork for subsequent knowledge, so students will need to have a solid understanding of concepts and skills learned earlier in the course to do well on later exams. You are allowed a one-page “info sheet” - an 8 ½ x 11” piece of paper (front and back) on which you can write any formulas, definitions, or examples you wish. A template of relevant formulas and equations will be provided. The exams will consist of multiple choice questions and problems. There will be a review during the class meeting before each exam during which we will go over a practice exam. *Make-up exams will only be given in the case of extenuating and unavoidable circumstances, and only with sufficient documentation.*

Extra Credit Project (optional)

Students have the chance to earn up 5 pts that will be added to their total test score at the end of the quarter. It's simple, sprout and keep a plant alive until the midterm, get 2.5 pts. Keep it alive until the last day of class, get 2.5 more pts. Seeds, sprouting pots, and dirt will be given out during the first week of class. Progress must be documented with a weekly photo that will be uploaded to a shared Google Drive folder:

<https://drive.google.com/drive/folders/0B0sru2IWGNtteU80cUViVGRjbVU?usp=sharing>

Please, make a folder with your name on it, change the "share" setting so that only you and I have access, start uploading photos by Friday 4/14/17 (End of Wk 2).

Course grade

	#	Points	%	Points	Grade
Homework	6	100	50	188-200	A/A+
Exams	2	100	50	180-187	A-
Total		200	100	174-179	B+
				168-173	B
				160-167	B-
				154-159	C+
				148-153	C
				140-147	C-
				134-139	D+
				128-133	D
				120-127	D-
				0-119	F

Students with Disabilities: Accommodations are provided for students who are registered with the Student Disability Center. If you anticipate needing accommodations in this course, please talk with me before the end of the first week of class. For more information, visit Student Disability Center website at <http://sdc.ucdavis.edu> or call (530) 752-3184

Academic Integrity: While I encourage you to work with and learn from your classmates, please be aware that cheating and plagiarism are severe violations of academic standards and will not be tolerated in this class. Cases of academic dishonesty will be referred to Student Judicial Affairs. Please see me if you have any questions about what constitutes academic dishonesty, but a good rule of thumb is: "don't write the same thing as your friend." For additional information on academic integrity at UC Davis, visit <http://sja.ucdavis.edu/cac.html>

Email: Class-related communications will generally occur via email. Check your UC Davis e-mail account and the course Canvas site regularly. If you send me an email, please include "Soc 106" in the subject line and allow for adequate response time (24 hours). Email is a difficult way to explain statistics & math - Please do not email me questions that require substantial explanation (over 3 lines); for in depth questions or explanations, please come to office hours or ask during class. I can better help you in those forum.

Hints for Success: Approach the class with a positive attitude. Keep in mind that many successful statisticians started off with bad cases of "stataphobia." Above all, **DON'T PANIC**. You can handle it if you give yourself and us a chance. If you are facing some difficulty, come talk with me and I will help you see the large picture and formulate an action plan. (My job is as much strategic planner and cheerleader, as it is teacher ☺)

- Begin working on homework assignments as soon as they are posted. If you wait until the day before an assignment is due to start working on it, you will not have adequate time to complete the assignment or to seek assistance should you need it.
- Also, keep up with the homework assignments. Once you fall behind, it becomes almost impossible to catch up. Statistics is inherently cumulative; everything builds on what came before.
- Use the problems in your textbook for extra practice. Solutions for odd-numbered problems are in the back of the book and, I have the answers for the evens, too – ask during office hours.
- Don't wait until the last minute before reviewing for an exam. You may need time to talk to us about things you thought you understood until you looked over your notes.
- Keep photocopies of all written work you hand in. If an assignment is lost, you will be expected to turn in another copy.
- Study with your classmates. Share resources and ideas. You can learn more this way and help others to learn as well!
 - However, to do well in the exams, you need to train your ability to work independently. **Work independently on the assignments BEFORE getting help from your friends or us.** Please DON'T bring empty homework pages to office hours and expect to fill it in.
- If you have a question, **ask it!** At least one of your classmates probably has a similar question and the whole class will benefit from you having done so 🗣️ If you don't understand a concept, keep asking questions until you do.
- Finally, don't think of statistics as something to suffer through for your degree. Most of you will need to handle and interpret data in your future work. Even if you don't, there are times in life when you are skeptical about claims made by journalists, advertisers, even supposedly reputable researchers. This course can make you an intelligent consumer of data rather than a passive recipient.

*Note: If you have questions or concerns regarding the course, your education trajectory, graduate schools, future jobs, etc. please come see me. I am here as a resource for you! (and remember, I once sat in your seat.)

Course Schedule¹

Date	Day	Topic	Read Chapter	HW Due	Friday Lab
4/4	Tues.	Course Overview			
4/6	Thurs.	Introduction to Statistics	1; 2.1		4/7: Intro to Stata
4/11	Tues.	Descriptive Statistics; Central Tendency	3		
4/13	Thurs.	Probability Distributions	4		4/14: Descriptive Stats
4/18	Tues.	Confidence Intervals; Statistical Significance	5.1-5.4	HW1	
4/20	Thurs.	One-Sample Significance Tests	6.1-6.5		4/21: Statistical Significance
4/25	Tues.	One-Sample Continue. Two-Sample Significance Tests	7.1- 7.2	HW2	
4/27	Thurs.	Two-Sample Significance Tests	7.3- 7.4		4/28: Two-Sample Tests
5/2	Tues.	Exam 1 Review		HW3	
5/4	Thurs.	Class Cancelled			5/5: Exam Review
5/9	Tues.	Exam 1			
5/11	Thurs.	Chi-Squared Tests	8.1-8.2		5/12: Chi-Squared
5/16	Tues.	ANOVA	12.1		
5/18	Thurs.	ANOVA	12.1		5/19: ANOVA; Correlation
5/23	Tues.	Bivariate Association: Correlation	9.1; 9.4	HW4	
5/25	Thurs.	Bivariate Association: Regression	9.2-9.3		5/26: Bivariate Regression
5/30	Tues.	Bivariate Association: Regression	9.5-9.7	HW5	
6/1	Thurs.	Multiple Regression	11.1-11.4		6/2: Multiple Regression
6/6	Tues.	Multiple Regression	11.1-11.4		
6/8	Thurs.	Exam 2 Review		HW6	
6/14	Wed.	Final: Exam 2, 3:30-5:30pm			

¹ Subject to change. Any changes will be announced via email and noted in an updated syllabus posted on Smartsite