

Research Methods & Models – Statistics (SOC 500)

Fall 2018, Wed 1:00-4:00, Tarbuton Hall 206

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Office Hours: Tues Wed Thurs 11:30-12:45, or by appointment

Description

This course is an introduction to descriptive and inferential statistics for univariate, bivariate, and multivariate analyses. The course will help you understand statistics reported in social science publications and in the news media as well as help you conduct original research. The overall goal is to increase your statistical literacy, i.e., your ability to create, interpret, and critically evaluate statistical evidence. Our focus is on using and interpreting statistics, not on the underlying mathematical proofs. No special math background or aptitude is required for the course, although a tolerance for basic arithmetic and some familiarity with high school algebra will be helpful. No previous computer program experience is expected; all the necessary computer skills will be taught in class.

Texts and Materials

Required: *Statistical Methods for the Social Sciences* (5th Edition, 2018) by Alan Agresti

Recommended: *IBM SPSS Statistics 19 Guide to Data Analysis* (2012) by Marija Norusis

In addition, you will be using Canvas to download and access the following materials:

- (1) reserve readings available online by clicking "Library Course Reserves";
- (2) weekly overheads that summarize and supplement key portions of the textbooks and other readings; and
- (3) data sets for take-home assignments. The actual assignments will be distributed in class, but the data sets needed to complete the assignments will be accessible via Canvas.

Requirements

Your grade in SOC 500 is based on take-home assignments and a take-home final exam. Details below.

Take-home Assignments. There are approximately 8-10 open book take-home assignments. These are designed to assess your conceptual understanding of the material, your ability to generate and interpret statistical output, and your ability to solve statistical problems by hand and interpret the results.

The assignments serve as a practical manual on how to use SPSS, a popular statistical program in academia and the business world. You will use SPSS to analyze various data sets such as the General Social Survey (GSS), often said to be the most frequently analyzed secondary data set in the social sciences. All the necessary step-by-step instructions for using SPSS will be provided on the assignments themselves. In addition to learning SPSS, you will see the parallel commands in other statistical software, such as STATA and R Studio. However, SPSS is emphasized in this course because its user-friendly menu system allows us to focus more on statistics and less on the peculiar syntax of command-line programs.

The take-home assignments are weighted equally and collectively count **65 percent** toward your overall course grade. The due dates for each assignment will be announced in class. You will typically have one full week to complete each assignment.

Take-Home Final Exam. This is an open book, take-home exam distributed in the last month of the semester, and you will have at least three weeks to complete it (due date TBA). The exam focuses on bivariate and multiple regression. The exam differs from the take-home assignments by giving you much more discretion over the analytic process, i.e., you get to choose which variables from the General Social Survey to analyze (rather than me telling you which ones to analyze). This resembles real-world research where no one is telling you what to do or how to do it — you decide these things on your own. The final exam represents **35 percent** of your total course grade.

A Note on Classroom Environment. Please refrain from chatting with friends during class, note passing, entering late, and leaving early. If you know that you will be leaving class early, inform me in advance, sit near the door, and leave as quietly as possible. Cell phones must be turned off in class. Classroom computers should only be used for class-related work; do not use them to check e-mail, for example.

Honor Code Policy. All work is to be completed in line with the Honor and Conduct Codes of Emory University's Laney Graduate School. By submitting work in this course, you are pledging that your work reflects academic honesty, i.e., you have not lied, cheated, plagiarized or done anything to gain unfair academic advantage for yourself or anyone else. It is up to you to familiarize yourself with the honor and conduct codes. See the following link for more details:

<http://www.gs.emory.edu/academics/policies/conduct.html>

Schedule of Topics and Reading Assignments

In learning statistics it is crucial that you keep up with the materials as they are presented. The lectures and computer work will be much more meaningful if you have done the reading beforehand, because then you will know what's important, what you don't understand, and what questions to ask.

I reserve the right to change the schedule below and other features of the syllabus if needed. Fair warning will be given.

The schedule begins on the next page.

Note: **A** = Agresti; **N** = Norusis; and **O** = online reserve reading. (As noted above, the Norusis textbook is recommended but not required.)

Week of...	Topic	Readings
8/27	DESCRIPTIVE AND UNIVARIATE STATISTICS Summarizing one variable using graphs and tables; Averages and the spread of scores	A: Chapters 1-3 N: Chapters 1-2, 4-5
9/3	INFERENCEAL AND UNIVARIATE STATISTICS Generalizing from sample to population; Random samples and sampling distributions; Estimating population parameters	A: Chapter 4 N: Chapters 10-11 O: Monte Carlo Simulations
9/10	Estimating population parameters (continued)	A: Chapter 5 O: Erring on the Margin of Error
9/17	Testing hypotheses about one variable	A: Chapter 6 N: Chapter 12 O: Confidence Interval or P-Value?
9/24	BIVARIATE ANALYSIS: DESCRIPTIVE & INFERENCEAL Comparing two groups; Significance tests for two means or proportions	A: Chapter 7 N: Chapter 14 O: The Gender Wage Gap Lie
10/1	Tables relating nominal and ordinal variables; Pattern, strength, and significance in cross-tabulation	A: Chapter 8 N: Chapters 8, 17, 19
10/8	Crosstabs continued	see readings for 10/1 and related overheads

Week of...	Topic	Readings
10/15	Special topics: Degrees of freedom, weighting samples, and composite measurement	O: How to Weight for Samples; About the GSS; see also class overheads
10/22	MULTIVARIATE ANALYSIS: DESCRIPTIVE & INFERENTIAL Multivariate crosstabs: Causality and statistical control in crosstabulation	See class overheads
10/29	Graphs relating interval and ratio variables; pattern, strength, and significance in correlation and regression	A: Chapter 9 N: Chapters 9, 20, 21
11/5	From bivariate to multiple correlation and regression	A: Chapter 10
11/12	Multiple correlation and regression: Interpreting results and diagnosing problems	A: Chapter 11 N: Chapter 22 O: What is Multiple Regression?
11/19	Thanksgiving Break (class not held on 11/21)	
11/26	Multiple correlation and Regression (continued)	A: Chapter 12 (read section 12.1 on dummy variables)
12/3	Last Day on 12/5: Catch-up and review	

**Due date for final
take-home assignment:
December 11 by 12 noon**