

Sociology 581: Advanced Social Statistics I  
The University of New Mexico  
Spring 2018

Professor Reuben Thomas  
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Office: Social Sciences 1070

Thursdays 4:00 - 6:30 PM  
Sociology Reading Room (Soc Office)  
Office Hours: Thursdays 2:00 - 3:30 PM

**Description:**

This PhD level course is intended to introduce you to the statistical methods commonly used in quantitative sociological research (an introduction that will be completed in the next course in the sequence, 582). It assumes no prior knowledge of statistics, only basic high school level knowledge of algebra and geometry. Many of you will have more prior exposure than that, but a reintroduction to the basics from a graduate-level sociology perspective should still be useful to you. The course will progress through three stages: first we'll (re-)learn the basics of variance, sampling and hypotheses testing, then we'll progress through the fundamentals of bivariate analyses, culminating with multivariate regression. This course is mostly oriented to the practical use of these methods in conducting social research, with less attention to mastering the mathematics behind the methods. We'll be learning to use statistical software to analyze social data at every step along the way, but there will be some more mathematically focused homework assignments as well. The ultimate goal of this course is learning to produce an original research paper using multiple regression analysis.

The learning goals for the course include:

Understanding how statistical sampling and hypothesis testing apply to social science research.

Confidence in one's ability to conduct quantitative social research using multiple regression models.

A working understanding of the OLS multiple regression method, its assumptions and requirements, and which research questions and social data it is useful and appropriate for.

Practical experience constructing the "back end" of a research paper using multiple regression models.

**Requirements:**

Grades for the course will be determined by a series of homework assignments, short data analysis research reports, one big paper at the end of the semester, and class participation:

Homework Assignments	20%
Data Analysis Reports	20%
Multiple Regression Paper	50%
Class Participation	10%

There will be no final nor midterm.

**Assignments turned in late will be penalized severely.** I will lower your grade for any late assignments by a letter grade or more, depending upon how late it is. Aside from truly extraordinary life events, most reasons for lateness will not change this penalty (we all have legitimate reasons to be doing something else with our time).

**Class participation (and therefore attendance) is part of your grade.** Consider this an easy 10% of

your grade for being a good course citizen, as well as a grade penalty for anyone who is not. For instance, interrupting me to ask relevant questions is encouraged, and can increase this portion of your grade. Disrupting the class by showing up late, or leaving early, is not, and can lower this grade.

**The Multiple Regression Paper is the Ultimate Goal of this class.** This method is the basis of most quantitative sociology, and learning to produce this basic research form is a key step in becoming a sociologist. It is due at the end of the course, it is very determinative of your grade, and the latter half of the course will focus on preparing it.

### **Readings:**

There is one required book for the course:

Allison, Paul. 1998. **Multiple Regression: A Primer.** Pine Forge Press. ISBN-13: 978-0761985334

It's small and expensive, but by far the best thing I've read explaining the basics of regression. Used copies from online sellers usually cost between \$30-\$40, and I believe it can also be rented online.

### **Software:**

Though the methods we will cover can be implemented with a variety of software packages (most notably R, SAS, SPSS and even Excel), I will teach you how to do so with Stata, and I strongly recommend that you complete the assignments/papers using Stata. Stata is installed on the computers in the graduate student computer lab, and can be purchased directly from Stata itself to install on your own machine; it runs on Macs (64 bit only with OS X 10.7 or newer), Windows (Vista, 7, 8, or 10), or Linux. Stata has different pricing options that vary the size of the dataset it can handle, how many variables it can include in a model (matsize), and the number of processors it can use at once. Small Stata (which was recently discontinued?) is/was the cheapest option, but very limited in dataset size, too limited for most publication-quality research projects. I mostly use Stata/SE, but I would probably use Stata/IC if I had to buy it with my own personal finances:

<http://www.stata.com/products/which-stata-is-right-for-me/>

You can purchase or rent Stata at the student rate here:

<http://www.stata.com/order/new/edu/gradplans/student-pricing/>

**Course Outline** (This is preliminary, and likely will change. See course website for updates)

January 18	Overview & The Basics
January 25	Variance & Distributions \ Intro to Stata & Social Data Management
February 1	Sampling, Estimation, & Hypothesis Testing
February 8	Bivariate Analyses for Categorical Variables
February 15	Recoding and Transforming Data in Stata
February 22	Correlation & Simple Regression
March 1	Correlation & Simple Regression

March 8	Multiple Regression
March 15	<b>No Class (Spring Break)</b>
March 22	Multiple Regression
March 29	Regression Diagnostics
April 5	Categorical Variables in Regression
April 12	Interaction Effects
April 19	Advanced Topics
April 26	Advanced Topics
May 3	Presentations ( <b>Last Day of Class</b> )
May 10	<b>Multiple Regression Paper Due</b>

**Additional Notes:**

**Academic Dishonesty:** All students are required to read and abide by UNM’s policies on academic honesty and integrity. Academic dishonesty includes, but is not limited to, dishonesty in quizzes, tests, or assignments as well as claiming credit for work not done or done by others. Violations of these policies will result in disciplinary action. Plagiarism and cheating will not be tolerated and will result in the student failing the course. If you have a question about what constitutes plagiarism or how to properly cite research, your best bet is to contact me and ask. Additional information is available at: <http://pathfinder.unm.edu/common/policies/dishonesty-academic-matters.html>

**Course accommodations and support:** If you need course adaptations or accommodations because of a disability, please inform me as soon as possible. You must also provide documentation to the Office of Accessibility Services (phone: 277-3506). UNM will make every effort to accommodate all qualified students with disabilities.

**TITLE IX, Education Amendments of 1972**

In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered “responsible employees” by the Department of Education. This means that any report of gender discrimination (which includes sexual harassment, sexual misconduct, and sexual violence) that is made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu).

Please note that UNM has three offices where you can discuss incidents and concerns confidentially, meaning that the staff there will not contact the Office of Equal Opportunity without your consent. If you are uncertain about how to respond to an act of gender discrimination, I encourage you to contact one of the following:

LoboRespect <http://loborespect.unm.edu>

The Womens' Resource Center <https://women.unm.edu>

LGBTQ Resource Center <http://lgbtqrc.unm.edu>