Sociology 582: Advanced Social Statistics II
The University of New Mexico
Fall 2017

Professor Reuben Thomas   Wednesdays 4:00 - 6:30 PM
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Office: Social Sciences 1070   Office Hours: W 2:30-3:30 or by appointment

Description:

This PhD level course is intended to complete your introduction to the statistical methods commonly used in quantitative sociological research. It assumes that you've already completed Soc 581 (or its equivalent in another department) and understand the basics of multiple regression. The course will progress through three stages: first we'll learn about the most common regression models for categorical dependent variables, then we'll consider the problems with missing data in our analyses, and how to deal with them, and the final stage of the course will focus on models for data that are clustered or nested, with an emphasis on learning hierarchical linear modeling (HLM). We'll also spend some time in that third segment on models that take account of time and models that make strong causal claims. 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.

The learning goals for the course include:

Confidence in one's ability to conduct quantitative social research using a variety of regression-based methods.

Knowledge of the differences between the many models discussed in this class, and which research questions and social data each is most useful and appropriate for.

Practical experience constructing the "back end" of research papers using advanced regression models.

Requirements:

Grades for the course will largely be determined by 3 research papers, which will be due at intervals spaced throughout the semester:

Categorical Outcome Paper   40%
Missing Data Report   15%
Multilevel Model Paper   40%
Class Participation   5%
There will be no final nor midterm.

This course will be most useful to you if you can incorporate these papers into your own research goals, either by working on one of your ongoing projects in the class, or by using these class assignments to pursue a new project you might like to develop into something bigger. Rather than use the data that is easiest to get access to, I encourage you to try to find the right data to tackle the questions you want to ask. Don't hesitate to come to me for help with this: that's an important part of my role as instructor in this course.

Assignments turned in late will be penalized <u>very severely</u>. 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 5% of your grade for being a good course citizen, as well as a grade penalty for anyone who is not. For instance, interupting 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.

Readings:

None of the books below are strictly required, but they are recommended, to different degrees. You can easily spend a lot of money buying all the recommended books for this course, even if you buy used copies and older editions. Methods books are expensive, and depending on your personal learning style, you may or may not get much out of them. On the other hand, these are all good books to add to your library. Each of the books below are widely read within Sociology, and they are very likely to be the resources journal reviewers reach for when they want to refresh their memory of the method you used in your submission.

Highly Recommended:
Regression Models for Categorical Dependent Variables Using Stata, 3rd edition.
J. Scott Long and Jeremy Freese
Stata Press, 2014.
ISBN-13: 978-1-59718-111-2
(This book walks you through using Stata to implement the models we'll learn in the first half of the course)

Recommended:
Hierarchical Linear Models: Applications and Data Analysis Methods, 2nd edition
Stephen W. Raudenbush and Anthony S. Bryk
Sage Publications, 2002
ISBN-13: 978-0761919049
(This book covers the method we'll learn in the last month of class)

Additional Sources:
(Either of these books discusses the methods we'll use in the first half of our class in greater detail than the Long & Freese book above, but more mathematically, and without Stata code.)

Regression Models for Categorical and Limited Dependent Variables.
J. Scott Long
Sage Publications, 1997.

Applied Regression Analysis and Generalized Linear Models
John Fox
Sage Publications, 2008.

Software:

Though the methods we will cover can be implemented with a variety of software packages (most notably R, SAS, and HLM), I will teach each using Stata, and strongly recommend that you complete the assignments/papers using Stata as well. Stata is installed on the computers in the Sociology 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 is the cheapest option, but very limited in dataset size, probably too limited for most publication-quality research projects: most social science data sets will need to be shrunk by dropping cases and variables before you can even open them with Small Stata. 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 may change. See course website for updates)
August 23	Class Overview
August 30	Dichotomous Outcomes (LPM vs Logit & Probit)
September 6	Dichotomous Outcomes
September 13	Multinomial & Ordinal Outcomes
September 20	Models for Count Outcomes
September 27	Diagnostics & Plots for Categorical Outcome Models
October 4	Missing Data Diagnostics **Categorical Outcomes Paper Due**
October 11	Imputing Missing Data
October 18	Intro to Models for Nested & Clustered Data
October 25	HLM **Missing Data Report Due**
November 1	HLM
November 8	HLM
November 15	HLM

November 22	Models with Time
November 29	Causal Analysis
December 6	Other Advanced Methods **(Last Day of Class)**
December 13	**Multilevel Model Paper Due**

Additonal 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 Centerhttps://women.unm.edu
LGBTQ Resource Center http://lgbtqrc.unm.edu