

Sociology 7110: Advanced Sociological Analysis

Utah State University
Thursday 2:30 – 5:00 pm
Old Main 224A
Spring 2017

Instructor: Professor So-jung Lim
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Office hours: Friday 1:00-3:00 p.m.

Course Description

This course is designed to provide doctoral students with a solid understanding of issues related to regression analyses, introduce them to possible remedies to analytic, data-linked challenges, and provide an overview and basic comprehension of advanced statistical techniques. It assumes a basic familiarity with descriptive statistics and linear regression, although we will spend a few weeks at the beginning of the semester going over these foundational concepts. The coverage of specific content and the pace at which we proceed may also shift somewhat depending on student needs.

The primary goals of this course are to develop statistical literacy and to acquire skills that are essential for good quantitative researchers. Specifically, as researchers and practitioners, you will need to be able to understand what other researchers do and further evaluate the methodological rigor of presented scientific evidence. In addition, you should be able to identify appropriate analytical tools for your own research questions, conduct data analyses (estimate models), interpret your results and communicate them with others via writing or verbal presentation.

Because of both the size and nature of the course, class meetings will be conducted in a lecture *and* seminar style, consisting of two parts, the first with lectures from the instructor as well as student presentations and discussions from the readings and the second consisting of hands-on practice to apply analytical methodology described in readings and lectures. In addition to doing weekly readings, attending lectures, and handing in written assignments, students will be required to submit a final project that analyzes an existing social science data set (see Requirements and weekly schedules for details). It is designed to serve as the first draft of an analytic section of a paper to be submitted as a conference presentation, journal article, or dissertation chapter.

For this course, we will be using Stata as primary statistical software. This program is available through the Spatial Lab server. You can use it from any campus computer, or from your own computer, provided you have logged in via the VPN (Virtual Private Network). Most readings from the textbook and video tutorials include specific Stata commands so that you can replicate examples presented in them and also learn to conduct regression analysis on your own.

Required Course Readings

Most of the readings come from required books listed below, which you can purchase at the University Bookstore or obtain free from the USU library in the format of ebook.

Rachel Gordon. 2010. *Regression Analysis for the Social Sciences*. Second Edition. New York: Routledge.

Paul Allison. 1996. *Multiple Regression: A Primer*. Thousand Oaks, CA: Pine Forge Press.

J. Scott Long & Jeremy Freese. 2006. *Regression Models for Categorical Dependent Variables Using Stata*. Third Edition. College Station, TX: Stata Press.

Judith D. Singer & John B. Willett. 2003. *Applied Longitudinal Data Analysis: Modeling Change and Event Occurrence*. New York: Oxford University Press. (Note: No purchase is necessary. Available in ebook format from the USU library.)

Requirements and Grading

1. Class participation (20%)

Regular attendance at and participation in class is assumed and it is imperative that you keep up with readings and arrive prepared to participate in discussions. Class participation also includes presenting adequate summaries of the published journal articles, when appropriate.

Please note that your “reading” assignments will also include viewing online videos, made publicly available via statistics and sociology programs at a wide range of research universities that focus on specific statistical techniques using Stata. Similar videos are easily identifiable online for SAS as well, so students who wish to learn both statistical packages (the Gordon book we will use provides a great opportunity for that) may wish to view similar videos online to assist with that process.

2. Weekly assignments (30%)

After learning a specific regression model through readings and lectures, you will be required to complete weekly written assignments related to that topic. These assignments will include a combination of hand-calculated problems, computations, or analyses completed in a statistical package, written discussions of possible problems with the data, and written descriptions of the methods employed and of the results of the statistical analysis. Through weekly written assignments, you will have opportunities to more fully understand what it is that you are doing as well as to communicate with others about your work. Weekly assignments will also help you to practice analytical skills with real-life examples and specific research questions. Details of weekly assignments will be announced in each class.

3. Final Paper (50%)

As a final project, you are required to write a research paper that identifies a specific research question and employs the most appropriate analytical tool to address that question. The data set, research question, and methods employed will be of your choosing and should relate to your own professional research trajectory. Given the focus of this course, this paper should include only a brief discussion of literature review and theory. In other words, essentially, you will be writing

the data/methods, results, and conclusions sections of a manuscript that could become a journal article, with the final product likely falling into the 20–25-page range.

I recommend selecting a research topic that has direct applicability to your dissertation idea (even if you have not defended your proposal yet) or involves a radical reworking of the data you used for your master's thesis or another substantial earlier piece of independent research. I further suggest that you work on the front end of this project in another class, or perhaps over the summer, and submit it for presentation at a conference and also for publication in a peer-reviewed journal. Note that because I intend for you to move forward with this paper as a publishable piece of work, you may need to provide evidence that your final project has received IRB approval (which may mean applying for IRB approval this semester). This may also require obtaining CITI certification to comply with the Responsible Conduct of Research component for all areas pertinent to your project.

The final paper is to be no more than 25 pages long, including references and tables. It should be written in 12 pt. font, double-spaced, with ASA-formatted references. The paper is due by 5pm on Thursday, May 4. Please submit the paper in hardcopy to my physical mailbox in the Sociology Department, Old Main Hill. **Late submissions will not be accepted.** I will assign final grades following USU standard, but there will be some adjustments if necessary.

Course Outline

Subject to change, please monitor course announcements.

Week 1 (1/12): Course Overview & Basics of STATA I

Week 2 (1/19): Workflow & Basics of STATA II

Required Readings:

1. Long & Freese Chapter 2.
2. Scott Long. 2009. *The Workflow of Data Analysis: Principles and Practice*. College Station, TX: Stata Press.

Read *Introduction* (pg. 1-9). Pdf file is available here:

http://www.indiana.edu/~jlsoc/web_workflow/drafts/workflow-ch1-proofs-2008-09-05.pdf

Required Videos:

1. UCLA STATA unit 1 (Entering Data) and unit 2 (Exploring Data): Notes are available here: <http://www.ats.ucla.edu/stat/stata/notes/>

Videos available here:

http://www.ats.ucla.edu/stat/stata/notes/movies/Stata_unit1/Stata_unit1.html, and http://www.ats.ucla.edu/stat/stata/notes/movies/Stata_unit2/Stata_unit2.html

Week 3 (1/26): Overview of Regression Analysis & Basics of STATA III

Required Readings:

1. Gordon, Chapters 1 through 4
2. Allison, Preface and Chapter 1

Required Videos:

1. UCLA STATA unit 3 (Modifying Data) and unit 4 (Managing Data):

Notes are available here: <http://www.ats.ucla.edu/stat/stata/notes/>

Videos available here:

http://www.ats.ucla.edu/stat/stata/notes/movies/Stata_unit3/Stata_unit3.html, and

http://www.ats.ucla.edu/stat/stata/notes/movies/Stata_unit4/Stata_unit4.html

Week 4 (2/2): OLS Regression

Required Readings:

1. Gordon, Chapters 5 & 6
2. Allison, Chapters 2, 4, 5

Required Videos:

1. Stata Tutorial on Simple Linear Regression in Stata:

<https://www.youtube.com/watch?v=HafqFSB9x70>

2. UCLA STATA unit 5 (Analyzing Data):

Notes are available here: <http://www.ats.ucla.edu/stat/stata/notes/>

Videos available here:

http://www.ats.ucla.edu/stat/stata/notes/movies/Stata_unit3/Stata_unit5.html

(NOTE: Watch the first part of the video, including regression analysis. Anything after that, starting with logit models, does not need to be watched for this class)

Recommended Readings

1. Gee, Gilbert C., Annie Ro, Amilia Gavin, and David T. Takeuchi. 2008. "Disentangling the Effects of Racial and Weight Discrimination on Body Mass Index and Obesity among Asian Americans." *American Journal of Public Health* 98 (3): 493 – 500. URL: <http://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2007.114025>

Week 5 (2/9): Moderators (Interaction)

Required Readings:

1. Gordon, Chapters 7 & 8

Required Videos:

1. Stata (12) Dummy Variables and Interaction Expansion (xi)

Video available here: <http://www.youtube.com/watch?v=ijK10OwB9dk>

Recommended Readings

1. Gee, Gilbert C., Annie Ro, Amilia Gavin, and David T. Takeuchi. 2008. "Disentangling the Effects of Racial and Weight Discrimination on Body Mass Index and Obesity among Asian Americans." *American Journal of Public Health* 98 (3): 493 – 500. URL: <http://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2007.114025>
2. Mason, Katherine. 2012. "The Unequal Weight of Discrimination: Gender, Body Size, and Income Inequality." *Social Problems* 59 (3): 411 – 435. Stable URL: <http://www.jstor.org/stable/10.1525/sp.2012.59.3.411>.
3. Tolnay, Stewart E. and Suzanne C. Eichenlaub. 2007. "Inequality in the West: Race and Ethnic Variation in Occupational Status and Returns to Education, 1940 – 2000." *Social Science History* 31 (4): 471-507. (online via Ebscohost)

Week 6 (2/16): Mediators (Mechanisms and Pathways)

Required Readings:

1. Gordon, Chapter 10
2. Liana C. Sayer and Suzanne M. Bianchi. Women's Economic Independence and the Probability of Divorce

Week 7 (2/23): Regression Diagnostics/Patterning in the Error Term

****OUTLINE FOR FINAL PAPER DUE****

Required Readings:

1. Gordon, Chapter 11
2. Allison, Chapters 3, 6, & 7

Required Videos:

1. Stata Tutorial: Checking for Multicollinearity and outliers
<http://www.youtube.com/watch?v=n8NZQuqq5dw&feature=youtu.be>

Recommended Readings

1. Regression with Stata Web Book: Chapter 2, Regression Diagnostics
<http://www.ats.ucla.edu/stat/stata/webbooks/reg/chapter2/statareg2.htm>
2. Long & Freese. Chapter 3

Week 8 (3/2): Nonlinear Relationships

Required Readings:

1. Gordon, Chapter 9
2. Allison, Chapter 8

Week 9 (3/16): Models for Binary Outcomes: Logit and Probit Models

Required Readings:

1. Long & Freese Chapter 4.

Required Videos:

1. Stata Tutorial: Binary Logistic Regression (posted by London School of Economics)
Videos available here:
http://www.youtube.com/watch?v=0C_Hlh_jNq8

Recommended Readings

1. Eichenlaub, Suzanne C., Stewart E. Tolnay, and J. Trent Alexander. 2010. "Moving Out but Not Up: Economic Outcomes in the Great Migration." *American Sociological Review* 75 (1): 101-125. Stable URL: <http://asr.sagepub.com/content/75/1/101>.

SPRING BREAK: NO CLASS (MARCH 6 – MARCH 10)

Week 10 (3/23): Models for Ordinal Outcomes: Ordered Logit Model

Required Readings:

1. Long & Freese Chapter 7

Required Videos:

1. UCLA Stata Seminar on Beyond Binary Logistic Regression:
Videos available here:
http://www.ats.ucla.edu/stat/stata/seminars/stata_BeyondBinaryLogistic/movies/beyond_binary_ordinal.html

Recommended Readings

1. Lum, Terry Y., and Elizabeth Lightfoot. 2005. "The Effects of Volunteering on the Physical and Mental Health of Older People." *Research on aging* 27 (1): 31-55.

Week 11 (3/30): Models for Nominal Outcomes: Multinomial Logit Model

Required Readings:

1. Long & Freese Chapter 8

Recommended Videos:

1. Multinomial Probit and Logit Models in Stata:
Video available here:
<https://www.youtube.com/watch?v=iqypob4My4o&t=730s>

Recommended Readings

1. Kleykamp, Meredith A. 2006. "College, Jobs, or the Military? Enlistment in a Time of War." *Social Science Quarterly* 87 (2): 272-290. URL:
<http://onlinelibrary.wiley.com/doi/10.1111/j.1540-6237.2006.00380.x/pdf>

Week 12 (4/6): Models for Count Outcomes: Poisson Regression Model and Modifications

****PRELIMINARY WRITE-UP OF RESULTS DUE (4/6)****

Required Readings:

1. Long & Freese Chapter 9

Required Videos:

1. UCLA IDRE Stata Seminar on Regression Models with Count Data:
Videos available here:
http://www.ats.ucla.edu/stat/seminars/count_models/count.html

Recommended Readings

1. Baumer, Eric P. and Scott J. South. 2004. "Community Effects on Youth Sexual Activity." *Journal of Marriage and Family* 63 (2): 540 – 554. URL:
<http://onlinelibrary.wiley.com/doi/10.1111/j.1741-3737.2001.00540.x/pdf>
2. Jacobs, David, and Jason T. Carmichael. 2004. "Ideology, Social Threat, and the Death Sentence: Capital Sentences Across Time and Space," *Social Forces* 83 (1): 249 – 278. URL: <http://muse.jhu.edu/journals/sof/summary/v083/83.1jacobs.html>. Modrek,
3. Sepideh and Negar Ghobadi. 2011. "The Expansion of Health Houses and Fertility Outcomes in Rural Iran." *Studies in Family Planning*.42 (3): 137 – 146. URL: <http://onlinelibrary.wiley.com/doi/10.1111/j.1728-4465.2011.00274.x/pdf>.
4. Lyons, Christopher J. 2007. "Community (Dis)Organization and Racially Motivated Crime." *American Journal of Sociology* 113 (3): 815 – 863. Stable URL: <http://www.jstor.org/stable/10.1086/521846>

Week 13 (4/13): Event History Analysis

Required Readings:

1. Singer & Willett. Chapters 9 & 11. (ebook available from the USU library)
(NOTE: Download Stata commands from
<http://www.ats.ucla.edu/stat/examples/alda.htm>. With these commands, you can replicate tables and figures presented in the textbook.)

Recommended Readings:

1. Singer & Willett. Chapters 10 & 14. (ebook available from the USU library)

2. Allison: Event History and Survival Analysis (ebook available from the USU library)
3. Yamaguchi Chapter 1. (no ebook available)
4. Hans-Peter Blsoofeld, Golsch, Katrin, & Rohwer, Götz. 2007. *Event History Analysis with Stata*. Psychology Press: New York.
5. Teachman, Jay. 2008. "Complex Life Course Patterns and the Risk of Divorce in Second Marriages." *Journal of Marriage and Family* 70 (2): 294 – 305. URL: <http://onlinelibrary.wiley.com/doi/10.1111/j.1741-3737.2008.00482.x/pdf>

Week 14 (4/20): Student Presentations

FINAL PAPER DUE: MAY 4 (THURSDAY), 5:00 p.m.

