

Sociology 462/862: Basic Regression Analysis

Fall 2017

Tuesday/Thursday 9:30-10:45 AM

707 Oldfather Hall

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Office hours: Tuesday 11:00 AM-12:00 PM, Wednesday 2:00-3:00 PM or by appointment

Prerequisites: An undergraduate course on statistical methods in the social sciences (such as SOCI 206).

A. Required Readings

Warner, Rebecca M. 2013. *Applied Statistics: From Bivariate Through Multivariate Techniques*. Second Edition. Sage.

Aneshensel, Carol S. 2013. *Theory-Based Data Analysis for the Social Sciences*. Second Edition. Sage.

Delwiche, Lora D., and Susan J. Slaughter. 2012. *The Little SAS Book: A Primer, 5th Edition*. Cary, NC: SAS Institute.

Additional weekly readings will be posted on Canvas throughout the semester.

B. Overview of Course

This class is an introduction to statistical analysis using linear models. These statistical analysis methods are the bedrock of sociological analysis; understanding these methods will make understanding other analytic methods easier, and will help in understanding and creating empirical literature. This class will also introduce students to SAS.

C. Goals of the Course

Conducting well-conceived, well-articulated Sociological research is the key to success as a graduate student. Quantitative research methods encompass a wide array of methods, from simple to complex. Whether your career goals include being an academic or working at a think tank, being a researcher or a teacher, guiding local, state or national policy, or working for a for profit organization, quantitative research skills will be helpful and often necessary. Even if your primary research method will be qualitative, you will work with quantitative researchers and it is useful to know what they are talking about. As such, this class will provide you with the foundational skills for conducting quantitative analyses in Sociology.

In this course, we will also introduce you to an important statistical package called SAS. There are many software packages in use – SAS, Stata, SPSS and R are the four major players. Each of these software packages has different strengths, and I use all of them (except for R) regularly. The key part of any of

these software packages is learning how to program using syntax rather than a point and click system. SAS is fully syntax-driven. In the Sociology department, you will find that faculty use a mix of SAS, Stata, SPSS and R. The more software packages you know, the better off you will be in the long run. If you are staying in academia, you will likely use the software package of your choice. If you are leaving academia, many non-academic research organizations use SAS (at least, where I have worked). For an interesting article comparing the popularity of different software packages, see: <http://r4stats.com/articles/popularity/>.

Finally, it is no use being an analyst if you can't write up your findings such that others will understand them. As such, we will have homework assignments that require you to write up your findings as well as a final project. Your final project can be a way to get started on your master's thesis or initial analyses for your dissertation, begin work on an article for submission to a conference or peer review, or just start playing with data.

D. Format of the Course

The course will be comprised of readings, lectures and discussion.

E. Weekly Exemplar Articles

We will have weekly exemplar articles that use the methods we are covering each week. The topics for the articles will fall into one of the major areas of the Sociology department (health, family, inequality, methods, networks). The goals of the articles are (a) to provide an introduction to the type of research done by UNL faculty, (b) to provide examples of analyses in the peer-reviewed literature using the methods of interest, and (c) to provide examples of how to write up the analyses we will be discussing. They may also provide additional information of background for the method that we are covering for the week. There will be 1-3 articles each week; we may not discuss these articles in class, but I will refer to them as needed for illustrating writing styles. These articles will be posted on the Canvas site.

F. Homework Assignments

This class will consist of participation, homework assignments and a final project.

Homework assignments and paper assignments will be given on alternating weeks, starting with the second week of class. Each assignment will be due via Canvas the following Tuesday by the beginning of class. Late assignments will be deducted by one letter grade for each day that they are late. Because there will be homework or a paper assignment each week, no extensions will be given on homework assignments except for excused absences. Late assignments will be deducted by 10 points for each day that they are late. Assignments handed in on Tuesday after class will be considered one day late, on Wednesday will be considered two days late, and so on. All assignments that are not received within five business days (by the end of the day on Monday) will receive a grade of zero. Details on each assignment will be given during class and/or posted on Canvas.

The homework assignments will focus on application of the methods discussed in class to actual data sets. They are designed to acquaint you with the methods and software for each topic of the course.

Homework assignments must be typed. Students are encouraged to use equation editors for accurate notation. All work and final answers must be neat and clearly labeled. All answers in which more than one answer is provided or the final answer is ambiguous will be marked as incorrect. All assignments must be handed in via Canvas to the instructor at the beginning of class, unless otherwise noted. Homework assignments will be graded on a three-point scale, ✓+, ✓, and ✓-, corresponding to 100, 90 and 80 points, respectively. Although study groups are permitted to facilitate understanding the material, all students are required to turn in their own homework assignments. Copying another student's homework or handing in another student's homework as your own (including with minor changes) is considered cheating, per the UNL Student Code of Conduct (<http://stuafs.unl.edu/dos/code#rules>).

This class requires students to write statistical findings for a scientific audience. Students who need writing assistance are encouraged to visit the UNL writing center: <http://www.unl.edu/writing/>

Cheating and plagiarism will not be tolerated. Both cheating and plagiarism are violations of UNL's Student Code of Conduct. Any assignment, exam, or project in which cheating or plagiarism or any other form of academic misconduct is identified at minimum will result in immediate failure of the assignment and, depending on the scope of the assignment, may result in immediate failure of the class. These acts of cheating, plagiarism, or any other violations of academic integrity will be reported to the Sociology graduate chair, Sociology department chair, and to the Office of the Dean of Students, as detailed in the UNL Sociology Graduate Handbook. The instructor reserves the right to use Turnitin or other plagiarism detection tools to help in assessing the risk of plagiarism. For information on plagiarism and what constitutes acceptable and unacceptable citations, please see the Graduate Studies website at <http://www.unl.edu/gradstudies/current> and <http://www.unl.edu/gradstudies/current/integrity#plagiarism>

Class notes will be placed on Canvas before each class period. Students are responsible for bringing a copy of the class notes to each class. The instructor will not make copies of the notes.

G. Paper Assignments and Final Project

The final project will be a piece of independent empirical research conducted using a dataset of your choice with a dependent variable that meets requirements discussed in class. Students are strongly encouraged to meet with Dr. Olson to discuss their topics and datasets.

To assist in writing the paper, there are intermediate deadlines throughout the term for portions of the paper. Paper assignments will be graded using letter grades (e.g., A+, A, A-). The following scores will be assigned to each letter grade:

Letter Grade	Numeric Score	Letter Grade	Numeric Score
A+	100	C	71
A	95	C-	68
A-	91	D+	65
B+	88	D	61
B	85	D-	58
B-	78	F	0
C+	75		

The final paper will be between 20 and 25 pages in length (excluding references), double spaced, Times New Roman 12 pt. font with 1 inch margins. All students will conduct an (approx.) 10 minute oral presentation of their papers in class. Your final presentation grade will be determined by evaluations from Dr. Olson and your classmates. More information on the paper assignments and the presentations will be distributed throughout the semester.

H. Midterm Exam

There will be one midterm examination, administered through Canvas. More information about the midterm will be provided in class.

I. Participation

Participation in class will make the course a better experience for everyone. Class attendance is expected. If you choose to or are not able to not attend class, you are expected to get notes from a fellow student in the class. In the case of inclement weather, we will hold class at the scheduled time unless the University is closed. Students are required to have completed the readings before the class meeting time. Attendance alone is not sufficient to earn a full participation grade.

The class schedule below is subject to change. Changes will be announced in class and/or on the class web page. Not knowing about syllabus changes, including changes in assignments, because of class absence or for not checking the class Canvas website are not legitimate excuses for failure to complete the course requirements.

J. Grading

Grades will be constituted as follows:

Assignment	Percent
Homework assignments	25%
Paper assignments	20%
Midterm exam	15%
Final Presentation	10%
Final Paper	20%
Participation	10%
Total	100%

Final grades will be assigned as follows:

Grade	Weighted Percentage	Grade	Weighted Percentage
A+	100	C	76.9-73
A	99.9-93	C-	72.9-70
A-	92.9-90	D+	69.9-67
B+	89.9-87	D	66.9-63
B	86.9-83	D-	62.9-60
B-	82.9-80	F	0.0-59.9
C+	79.9-77		

I will not give extra credit and will not change grade distributions to ‘curve’ the class. Students may take the course pass/no pass. If taking the class pass/no pass, students must earn a B or better grade to earn a “pass.”

Grade appeals must be made in writing. The procedure for grade appeals is the following: (1) Provide the instructor with your grade appeal in writing, including documentation to support the claim, within two weeks of the grade being given. (2) The instructor will regrade your assignment. Grades may go up or down on regrading. (3) If you still would like to pursue a grade appeal after the regrading, provide written documentation to the Graduate Chair of the Sociology Department. More information about grade appeals can be found here: <http://cas.unl.edu/grading-appeals> and <http://www.unl.edu/gradstudies/bulletin/graduate-grade-appeals>

K. Technology and other distractions policy

The use of cell phones is not allowed in class. Laptops or tablets for class purposes are permitted, but not for use of non-class related websites (this includes checking email during class). Turn off all cell phones before class starts. One accidental ring of a cell phone will be permitted per semester; after this, the student’s participation grade will have 3 points deducted from their final paper grade for each ring, text, or other use of the phone or electronic device in class. All newspapers, magazines, readings for other classes, or any other material other than that necessary for this class also must be put away when entering the classroom. Any student who is seen reading a newspaper, magazine, or anything not related to this class will receive an automatic 3 point deduction from his/her final paper grade for each use of this material.

L. Office hours and e-mail

Office hours will be held Tuesdays from 11:00 AM – 12:00 PM and Wednesdays from 2:00 PM – 3:00 PM. Appointments for in-person meetings with Dr. Olson outside of office hours can be scheduled by contacting her via e-mail (kolson5@unl.edu, preferred) or before class.

All e-mails and announcements from Dr. Olson to the class will be conducted through Canvas. It is your responsibility to ensure that the e-mail address in Canvas is up-to-date. It is also your responsibility to ensure that other class members who need your e-mail address have your preferred e-mail address.

M. Accommodations for students with disabilities

Students with disabilities are encouraged to contact the instructor for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 472-3787 voice or TTY.

N. Due Dates. Schedule, readings and assignments subject to change.

Week	Day	Date	Topic	Reading due	Homework Assigned	Homework Due
1	T	Aug. 22	Introduction, syllabus and expectations, Sampling and Measurement review	W: Ch. 1	Pretest	
	Th	Aug. 24	Basic Statistics, Sampling Error, and Confidence Intervals	W: Ch. 2 A: Ch. 1		Pretest
2	T	Aug. 29	Statistical Significance Testing	A: Ch. 2 W: Ch. 3 AmStatAssoc statement on p-values	HW1	
	Th	Aug. 31	Introduction to SAS (Lab)	DS, Ch. 1-4		
3	T	Sept. 5	Preliminary Data Screening	W: Ch. 4	Paper 1	HW1
	Th	Sept. 7	SAS: Preliminary Data Screening (lab)	DS, Ch. 8, 9.1-9.2		
4	T	Sept. 12	Comparing Group Means Using the Independent Samples t-test	W, Ch. 5	HW2	Paper 1
	Th	Sept. 14	One-way between subjects Analysis of Variance	W, Ch. 6		
5	T	Sept. 19	Bivariate Pearson Correlation & Alternative Correlation Coefficients	W, Ch. 7-8 A, Ch. 3	Paper 2	HW2
	Th	Sept. 21	SAS: t-tests, ANOVAs, and correlations (Lab)	DS, Ch. 9.4-9.9, 9.12-9.13		
6	T	Sept. 26	Bivariate Regression & Regression Diagnostics	W, Ch. 9 A, Ch. 4	HW3	
	Th	Sept. 28	SAS: Regression (lab)	DS, 9.10-9.11		
7	T	Oct. 3	Regression Diagnostics	KNN Ch. 3 (see Canvas)		HW3
	Th	Oct. 5	SAS: More Regression Diagnostics (lab)		Paper 3	Paper 2
8	T	Oct. 10	Review for Midterm			
	Th	Oct. 12	Midterm (Lab)			

9	T	Oct. 17	No Class – Fall Break				
	Th	Oct. 19	Multiple Regression: Adding a Third Variable	W, Ch. 10 A, Ch. 5	HW 4		
10	T	Oct. 24	Multiple Regression with Two Predictor Variables	W, Ch. 11 A, Ch. 7			
	Th	Oct. 26	SAS: Multiple regression with two predictor variables		Paper 4	Paper 3	
11	T	Oct. 31	Dummy Predictor Variables in Multiple Regression	W, Ch. 12 A, Ch. 8	HW 5	HW4	
	Th	Nov. 2	SAS: Multiple regression with categorical predictors				
12	T	Nov. 7	Multiple Regression with More than Two Predictors	W, Ch. 14 A, Ch. 9	HW 6	HW 5	
	Th	Nov. 9	Moderation (Interaction effects)	W, Ch. 15 A, Ch. 10			
13	T	Nov. 14	More about moderation and interaction effects		Final paper and presentation	Paper 4	
	Th	Nov. 16	SAS: >2 predictors + Moderation (Lab)				
14	T	Nov. 21	Mediation	W, Ch. 16		HW 6	
	Th	Nov. 23	No Class – Thanksgiving				
15	T	Nov. 28	More about mediation				
	Th	Nov. 30	Catch up / TBD / (Lab)	TBD			
16	T	Dec. 5	Final Presentations				
	Th	Dec. 7	Final Presentations			Final presentation	
17	M	Dec. 11	Final Project Due, 10:00 AM			Final paper	
