Sociology 542
Statistical Methods in Sociology II
Fall 2016
Wednesday, 1:00 – 3:40 pm, Davison Hall, Room 128
Course web page is available on https://sakai.rutgers.edu/portal

Professor Sharon Bzostek

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Course Content

This is the second course in a two-semester sequence of graduate-level statistics and data analysis classes. The goal of the course is to provide an understanding of the principles and application of multivariate techniques of data analysis. The course begins with an overview of the quantitative approach to sociological research and a review of bivariate correlation and regression. We then proceed to the main focus of the course -- providing a thorough understanding of the assumptions and application of multiple regression. The final portion of the course covers binary logistic regression and some of the basic underpinnings of more advanced statistical methods. Throughout the semester, we emphasize the application of the statistical techniques we are learning (including computer applications using *Stata)* and the substantive interpretation of quantitative results in relation to sociologically motivated research questions and hypotheses.

Learning Goals

By the end of the semester, students will:

- Be proficient in creating datasets, recoding variables, and running basic descriptive analyses using Stata
- Understand the conceptual underpinnings and assumptions of multiple regression
- Be able to conduct and interpret OLS and binary logistic regression analyses using Stata
- Be familiar with and proficient in handling interaction effects, non-linear relationships, and assumption violations in multiple regression analyses
- Have used the analytic methods they learned in the course to prepare an original empirical research paper, which could be used in the future to develop a qualifying paper, conference paper, and/or journal article

Diversity Statement

The Rutgers Sociology Department strives to create an environment that supports and affirms diversity in all manifestations, including race, ethnicity, gender, sexual orientation, religion, age, social class, disability status, region/country of origin, and political orientation. We also celebrate diversity of theoretical and methodological perspectives among our faculty and students and seek to create an atmosphere of respect and mutual dialogue. We have zero tolerance for violations of these principles and have instituted clear and respectful procedures for responding to such grievances.

Academic Misconduct

Academic honesty is a subject that I take very seriously. I encourage all students to familiarize themselves with the Rutgers University policies and procedures on academic honesty, available at http://academicintegrity.rutgers.edu/academic-integrity-at-rutgers. All violations of academic integrity, for example, copying or plagiarizing others' work for your written assignments, will be referred to the appropriate authorities and sanctioned accordingly.

Students with Disabilities

In accordance with University policy, if you have a documented disability and require accommodations to obtain equal access in this course, please contact me at the beginning of the semester. Students with disabilities must be registered with Office of Student Disability Services and must provide verification of their eligibility for such accommodations.

Textbooks and Readings

Required:

McClendon, McKee. 2002. *Multiple Regression and Causal Analysis*. Long Grove, IL: Waveland Press. ISBN-13: 978-1577662433.

Lewis-Beck, Colin and Michael S. Lewis-Beck. 2016. *Applied Regression: An Introduction, 2nd edition*. Sage. ISBN-13: 978-0803914940.

Miller, Jane E. 2013. *The Chicago Guide to Writing about Multivariate Analysis, 2nd edition*. Chicago: University of Chicago Press. ISBN-13: 978-0226527871.

Supplemental:

Acock, Alan. 2012. A Gentle Introduction to Stata, Fourth Edition. Stata Press. ISBN-13: 978-1597181426.

Allison, Paul D. 1999. *Multiple Regression:A Primer*. Thousand Oaks, CA: Pine Forge. ISBN-13: 978-0761985334.

All readings except for the textbooks are available on Sakai.

<u>Requirements</u>

1. **Homework Assignments (total of 56% of course grade):** Seven homework assignments will be made throughout the semester. *Each assignment is worth 8% of the course grade*. Most assignments include a computer application and a write-up that presents an interpretation of results in relation to the hypotheses being tested. Each assignment will be turned in electronically via Sakai by MIDNIGHT on the Monday before class. You should never come late to class or miss a class session in order to complete an assignment.

   I believe that cooperation is the basis of good learning, and I encourage you to consult with one another while working on assignments. I leave it up to your individual consciences to determine the fine line between working with one another in a cooperative manner and merely copying from one another. In other words, talk and consult with each other as much as you like but in the end **each student is required do his or her own individual written work**.

2. **Final research paper (40% of course grade).** Each student will write a paper that presents an original empirical piece of multivariate quantitative research based upon the analysis of available secondary data. You will use a data set of your choice to work with on this project, although I can make a few data sets available to students upon request. The paper will follow the format of a sociology journal article and will include the following sections: (a) an introduction that sets forth the research question and describes the contribution of the research; (b) a section that develops substantive arguments and hypotheses, based upon theory and prior research, that you will test; (c) a description of the data, measures, and methods of multivariate analysis (you may use OLS regression or logistic regression); (d) a presentation and interpretation of the findings; and (e) a discussion of the implications of the findings in relation to theory, prior research, and/or policy. Two of the homework assignments made during the semester will help provide the initial foundation for this paper.

   As with your assignments, I encourage you to consult with one another as you develop your project and analyze your data. However, each student must conduct his or her own individual piece of research, and write his or her own paper.

3. **Class presentation of your research (4% of course grade).** Each student will make a 15 minute presentation of his or her research to the class during one of the last two class sessions. This presentation will follow the format of a professional presentation at a sociology conference. We will discuss specifics aspects of a good presentation in class.

Note: All written materials that are turned in must be typed (double-spaced for text!) or generated electronically and submitted electronically via our course Sakai site. This includes tables, formulas, graphs and the like. We will be discussing how to produce professional looking tables and graphs in the course. Always maintain a copy and a back-up copy of the work that you are doing and turning in.

COURSE OUTLINE

IMPORTANT NOTE: You should read all assigned readings <u>BEFORE</u> class so that you are prepared to understand the lecture, ask useful questions, and make insightful comments. Given the complex and often technical nature of the material covered, there will not be time for extensive discussions every week. Being well prepared with questions and comments about the technical and applied readings will facilitate your learning and that of other class members.

*Indicates articles that are available on Sakai

Week 1.   Wednesday, Sept. 7

Overview of Quantitative Research, Data, and Computer Applications

>*Required:*

>McClendon, Chapter 1 and Chapter 2 (pp. 20-41)

>Lewis-Beck & Lewis-Beck, Chapter 1 (pp. 1-21)

>Miller, Chapter 4 (pp. 49-64)

Week 2.   Wednesday, Sept. 14

Bivariate Regression: A Thorough Review

>*Required:*

>McClendon, Chapter 2 (pp. 42-59) & Chapter 4 (pp. 133-157)

>Lewis-Beck & Lewis-Beck Chapter 2 (pp. 23-53)

>Miller, Chapter 2, Chapter 3, and Chapter 5 (pp. 77-91)

>*Recommended:*

>*White, Lynn. 2005. "Writes of Passage: Writing an Empirical Journal Article." *Journal of Marriage and Family* 67: 791-798.

>*Smith, Emma. 2008. "Pitfalls and Promises: The Use of Secondary Data Analysis in Education Research." *British Journal of Educational Sciences* 56:323-339.

>Allison, Chapter 5 (pp. 97-108)

Week 3.   Wednesday, Sept. 21

Basics of Multiple Regression

    Assignment 1 (describing data & bivariate regression) due by 11:59 pm Mon., 9/19.

    The material in the following two readings will be covered during weeks 3 and 4. You should read these before today's class and perhaps again before next week.

    McClendon, Chapter 3 and Chapter 4 (pp. 157-174)

    Lewis-Beck & Lewis-Beck Chapter 3 and Chapter 4 (pp. 55-86)

    Recommended:

    Allison, Chapters 1 and 2

Week 4.   Wednesday, Sept. 28

Multiple Regression Continued

    Assignment 2 (your research question and data) due by 11:59 pm Mon,. 9/26.

    *Thompson, Maxine S. and Verna M. Keith. 2001. "The Blacker the Berry: Gender, Skin Tone, Self-Esteem, and Self-Efficacy" *Gender and Society* 15: 336 - 357. (read up to the top of p. 349)

    *Fomby, Paula and Andrew J. Cherlin. 2007. "Family Instability and Child Well-Being." *American Sociological Review* 72: 181-204.

    Miller, Chapter 5 (pp. 92-112)

    Recommended:

    Allison, Chapters 6, 7, and 15

Week 5.   Wednesday, Oct. 5

    Categorical Independent Variables

    The material in the following two readings will be covered during weeks 5 and 6. You should read these before today and perhaps read them again before next week.

    McClendon, Chapter 5 (pp. 198-214)

    Lewis-Beck & Lewis-Beck Chapter 3 (pp. 66-71)

Week 6.   TBD. WED., OCTOBER 12 IS A JEWISH HOLIDAY.

Categorical Independent Variables Continued

Assignment 3 (basic multiple regression) due by 11:59 on Monday, 10/10.

> *Krivo, Lauren J. and Ruth D. Peterson. 1996. "Extremely Disadvantaged Neighborhoods and Urban Crime." *Social Forces* 75:619-650. (read up to the bottom of p. 630

Week 7.   Wednesday, October 19

Specifying Nonlinear Relationships

> **Assignment 4 (categorical independent variables) due by 11:59 pm on Mon, 10/17.**
>
> McClendon, Chapter 6
>
> *Recommended:*
>
> Allison, Chapter 8 (pp. 153-162)

Week 8.   Wednesday, October 26

Interaction Effects

> **Assignment 5 (nonlinearity) due by 11:59 pm on Monday, 10/24.**
>
> *The material in the following chapter will be covered during weeks 8 and 9. You should read these before today and perhaps read them again before next week.*
>
> McClendon, Chapter 7 (pp. 270-281)
>
> *Recommended:*
>
> Allison, Chapter 8 (pp. 166-170)

Week 9.   Wedneday, November 2

Interaction Effects Continued

> *Krivo, Lauren J. and Ruth D. Peterson. 1996. "Extremely Disadvantaged Neighborhoods and Urban Crime." *Social Forces* 75:619-650. (read pp. 632-643)
>
> *Thompson, Maxine S. and Verna M. Keith. 2001. "The Blacker the Berry: Gender, Skin Tone, Self-Esteem, and Self-Efficacy" *Gender and Society* 15: 336 - 357. (read pp. 349-354)
>
> *Carr, Deborah. 2004. "Gender, Pre-Loss Marital Dependence and Older Adults' Adjustment to Widowhood." *Journal of Marriage and Family* 66: 220-35.

Week 10. Wednesday, November 9

Logistic Regression

> **Assignment 6 (interactions) due by 11:59 pm on Monday, 11/2.**
>
> *The material in the following readings will be covered during weeks 10 and 11. You should read these before today and perhaps read them again before next week.*
>
> *Orme, John G. and Terri Combs-Orme. 2009. *Multiple Regression with Discrete Dependent Variables*. New York: Oxford. Chapter 2, "Regression with a Dichotomous Dependent Variable." (*note that the full text of this book is available online through the Rutgers library*)
>
> Miller, Chapter 9 (pp. 200-210)

Week 11. Wednesday, November 16

Logistic Regression Continued

> *Bailey, Amy Kate, Stewart E. Tolnay, E. M. Beck, and Jennifer D. Laird. 2011. "Targeting Lynch Victims: Social Marginality or Status Transgressions?" *American Sociological Review* 76:412-436.
>
> *Harris, Mark A. 2003. "Religiosity and Perceived Future Ascetic Deviance and Delinquency among Mormon Adolescents: Testing the 'This-Worldly' Supernatural Sanctions Thesis." *Sociological Inquiry* 73:28-51.

NO CLASS ON Wednesday, November 23 (RU change in course designation days)

Week 12. Wednesday, November 30

Violating the Assumptions

> **Assignment 7 (logistic regression) due by 11:59 pm on Monday, 11/21.**
>
> McClendon, Chapter 4 (pp.174-197)
>
> * Jochen, Peter and Patti Valkenberg. 2007. "Who Looks for Casual Dates on the Internet?   A Test of the Compensation and the Recreation Hypotheses." *New Media & Society* 9:455-474.
>
> Miller, Chapters 12 and 13 - *Note that this reading is particularly helpful in writing your research paper.*
>
> *Recommended:*
>
> Allison, Chapter 3

Week 13. Wednesday, December 7

Polytomous Outcomes

> *Orme, John G. and Terri Combs-Orme. 2009. *Multiple Regression with Discrete Dependent Variables*. New York: Oxford. Chapter 3, "Regression with a Polytomous Dependent Variable." (*note that the full text of this book is available online through the Rutgers library*)

> *Mincy, R., Garfinkel, I. & Nepomnyaschy, L. 2005. "In Hospital Paternity Establishment and Father Involvement in Fragile Families." *Journal of Marriage and Family* 67: 611-626.

Week 14. Wednesday, December 14

Student Presentations

PAPER DUE: TUESDAY, DECEMBER 20 AT 5 P.M.