

**Statistical Data Analysis in Sociology II**  
SOC 526b (4 hrs), Spring 2010

Professor:	Dr. Whaley	Class location:	Faner 3410
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			& by appointment

Overview

This is the second in the department's series of quantitative research/statistical analysis courses. It is an advanced course in multivariate statistical techniques with an emphasis on the practical application of multiple regression. There will be minimal emphasis on statistical theory and maximum focus on how choose appropriate methods, how to conduct appropriate analyses and resolve problems, how to interpret analyses and how to write about quantitative analyses. The many required assignments will give students the necessary practice in various analytical techniques, will give me the opportunity to provide feedback, and will function in some cases as first drafts of sections of the major research paper due at the end of the semester. This course is labor intensive and it is critical that students not fall behind in assignments. Knowledge will be gained through the practical application of techniques (running analyses), writing about analyses, classroom lectures and discussions, and reading published articles and instructional monographs. I expect an introductory knowledge of multiple regression and related topics, basic computer skills and elementary knowledge of SPSS. Pre-requisite: SOC 526a.

Materials

Readings in Sociology office: Copies of text chapters, sections of Sage monographs, etc.

Journal articles: Several journal articles are included on the schedule and are required. These are available on-line or will be made available in the main office. Additional articles may be assigned – stay tuned for announcements.

SPSS guide: Required: SPSS 17.0 Statistical Procedures Companion by Norusis (Prentice Hall). Older editions are acceptable (especially 16 and 15).

Sage publishes a series called *Quantitative applications in the Social Sciences* (the little green books). Many are available used, new issues are about \$16 each. Many of these are extremely useful references. See below.

Highly recommended Sage monographs:

1. Multiple regression in practice by Berry and Feldman
2. Interaction effects in multiple regression by Jaccard, Turrisi, and Wan
3. Applied Logistic Regression Analysis by Scott Menard

Recommended Sage monographs:

1. Missing Data by Paul D. Allison
2. Linear probability, logit and probit models by Aldrich and Nelson
3. Logistic regression models for ordinal response variables by O'Connell
4. Causal analysis with panel data by Finkel
5. The logic of causal order by Davis
6. Applied regression: An introduction by Lewis-Beck  
(and others depending in your specific interests, see me)

General responsibilities:

- a. Change defaults in spss to ensure that syntax, comments, names/values and labels are printed in the output.
- b. If you use pull-down menus, paste commands into a syntax file, use comments throughout, run comments to ensure that they print on the output.
- c. Always save two copies of all your syntax files and data files in two different places (lost files/flash drives etc. will not be acceptable excuses for late assignments)
- d. Print and turn in all output for every assignment.
- e. Turn in a written assignment with every computer assignment (must be typed, double spaced and 12 font) as described in detailed instructions (to be distributed weekly).
- f. Come to office hours as soon as you have any questions or concerns about the material. I will do my best to avail myself to you as needed. I can make appointments if office hours do not fit your schedule. I may be able to answer some questions through email but more often I will need to see your commands and output to really help).
- g. Check email regularly, stay abreast of changes to syllabus, attend all classes.

Grading

1. The 7 assignments involving analyses will be graded in terms of general quality, completeness, appropriateness of decisions, and accuracy of procedures and interpretations. Together they will comprise 60% of your grade. Late assignments will be penalized with a loss of points. Students may revise and resubmit assignments based on my feedback.
2. Research paper. Short (1 page) proposal due Week 3 (2/8), not graded. Draft of introduction and literature review due Week 10 (3/30), for feedback, not graded (late drafts not accepted). Final paper due Friday May 7 noon. Instructions and evaluation criteria will be provided and paper will comprise 40% of your grade.



- Week 4: Feb. 9      Correlations, Factor analysis and reliability analysis
- Land, McCall, & Cohen. 1990. Structural covariates of homicide rates: Are there any invariances across time and social space? *American Journal of Sociology*, 95(4):922-963.  
**\*\* Focus on multicollinearity and factor analyses**
- Van Gundy, Schieman, Kelley & Rebellon. 2005. Gender role orientations and alcohol use among Moscow and Toronto adults. *Social Science & Medicine*, 61(11):2317-2330.  
**\*\* Focus on: factor analysis**
- Week 5: Feb. 16      Review the fundamentals  
 Read: Norusis Ch. 6 (Describing your data),  
           Ch. 7 (Testing Hypotheses),  
           Ch. 8 (T tests)  
           Ch. 9 (One-way analysis of variance)  
**Due:** Assignment on “getting to know your data”
- Week 6: Feb. 23      Multiple Regression  
 Read: Hair et al., Ch. 4 and Appendix 4a  
**Due:** Factor analysis assignment
- Week 7: Mar. 2      Multiple Regression  
 (categorical independent variables)  
 (violations of assumptions (specification error, measurement error, multicollinearity))  
**Due:** Differences in group means assignment
- March 8<sup>th</sup> -12<sup>th</sup> spring break
- Week 8: Mar. 16      Interactions
- Due:** Regression assignment (with influence analysis)
- Sage: Jaccard, Turrisi, and Wan  
 Van Gundy, Schieman, Kelley & Rebellon. 2005. Gender role orientations and alcohol use among Moscow and Toronto adults. *Social Science & Medicine*, 61(11):2317-2330.  
**\*\* Focus on: moderation/mediation, ols**

- Week 9: Mar. 23      Other issues in causality: Direct and indirect effects, Panel models, nonrecursive models (latter topics will be introduced only)
- Berburg, Krohn, and Rivera. 2006. "Official labeling, criminal embeddedness, and subsequent delinquency: A longitudinal test of labeling theory." *Journal of Research in Crime and Delinquency*, 43(1): 67-88. *path model with panel data.*
- Week 10: Mar. 30      Violations of assumptions (continued)  
Functional form (nonlinearities) and Heteroscedasticity
- Due:** Draft of introduction/literature review
- Week 11: April 6      Finish regression (discuss missing data if not done yet, other issues)  
**Due:** Exploring interactions assignment
- Week 12: April 13      Discrete dependent (endogenous) variables  
Logistic regression
- Due:** Assignment on direct/indirect effects, nonlinearity, and/or dealing with missing data (as appropriate given your project)
- D'Alessio & Stolezenberg. 2003. Race and the probability of arrest. *Social Forces*, 81(4):1381-1397.
- Berburg, Krohn, and Rivera. 2006. "Official labeling, criminal embeddedness, and subsequent delinquency: A longitudinal test of labeling theory." *Journal of Research in Crime and Delinquency*, 43(1): 67-88.
- Week 13: April 20      Discrete DVs continued  
Ordinal and multinomial regression  
Count data (poisson and negative binomial regression)  
**Due:** Assignment on logistic regression
- Week 14: April 27      Multiple dependent variables  
(Manova, mancova, repeated measures, seemingly unrelated regression)
- Informal discussion of research projects (Q &A)
- Week 15: May 4      Hierarchical linear modeling  
Introduction to other statistical analyses

Friday May 7 noon Papers due