Statistical Data Analysis in Sociology II
SOC 526b (4 hrs), Spring 2013

Professor:	Dr. Whaley	Class location:	Faner 3410
Office:	Faner 3434	Schedule:	M 1- 4:30
E-mail:	rwhaley@siu.edu	Office Hours:	M 11-1, W 2-4, Th 12-2
Ofc Phone:	453-7631		& by appointment
Dept phone:	453-2494		

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 material. I expect an introductory knowledge of inferential statistics including multiple regression and related topics, basic computer skills and elementary knowledge of SPSS. Pre-requisite: SOC 526a.

Objectives:
1. Conduct a quantitative research project from start to finish.
2. Learn about and practice all relevant steps in statistical data analysis leading up to and including a multivariate regression analysis.
3. Program SPSS to recode and compute variables and to conduct appropriate analyses.
4. Interpret and write about analyses.

Required Materials

Access to SPSS. If you do not have access to SPSS on campus, you will have to purchase the student version of SPSS from the bookstore. You need to be able to print your output – over the term, this will be a lot of paper – there is no way around it.

Readings on D2L: as needed.

Text:
Knoke, Bohrnstedt, Mee. 2002. *Statistics for social data analysis*. Wadsworth/ Cengage.
OR
Other graduate level statistics text that covers univariate, bivariate, and multivariate.

SPSS guide: A guide is required. My preference is a guide by Norusis.
SPSS 17.0 Statistical Procedures Companion by Norusis (Prentice Hall). Older editions are acceptable (especially 16 and 15).

General responsibilities:
a. **EVERYTIME YOU START SPSS ON DIFFERENT MACHINE:** Change defaults in spss to ensure that syntax, comments, names/values and labels are printed in the output. If you work in a lab, you will have to do this every time you open spss. If you have your own computer, you should be able to do this just one time.
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. This will include table output but also syntax and comments must be printed on the output in proper order [not printed separately]
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 assignments involving analyses will be graded in terms of general quality, completeness, appropriateness of decisions, 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 for slight grade boost (assuming improvement). Most of these assignments (in revised form) will be integrated into the final research paper.
2. Research paper and related assignments. The course topics and assignments build upon each other and culminate in a complete set of analyses for a research paper. The goal is a manuscript that (with further revision) could be submitted to a conference or journal.

a. Short (1 page) proposal due 1/28 Week 3, not graded.
b. Introduction and literature review due 2/4 Week 4, not graded.
c. Detailed outline of methods and analyses due 4/8 Week 13.
d. Final PRINTED paper due Wednesday, May 8 at noon. Instructions and evaluation criteria will be provided and paper will comprise 40% of your grade.

Emergency Procedures:
Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the SIUC Emergency Response Plan and Building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available on the BERT'S website at www.bert.siu.edu, Department of Public Safety's website at www.dps.siu.edu (see disaster drop down) and in the Emergency ResponseGuidelines pamphlet. Know how to respond to each type of emergency.

Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. It **is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.** The Building Emergency Response Team will provide assistance to your instructor in evacuating the building or sheltering within the facility.

Tentative schedule:

Approx. date	Assignments Due	Topic	Readings
Weeks 1 & 3 1/14 & 1/28 **[no class 1/21]**		Introduction to topics, review basics of quantitative research, descriptive statistics	Text: Ch. 1
	1/28: Proposal abstract (data set and variables selected and initially justified)	Get to know spss and your data (using spss to clean up data set, recode/compute variables and initial univariate analyses)	Text: Ch. 2, 5 Norusis: Ch. 1-6 (Introduction, Getting to know SPSS, Introducing data, Preparing your data, Transforming your data, Describing your data) and 11 (correlation)
Week 4 2/4	2/4: Intro/Lit. review	Causality, Elaboration Contingency table analysis or cross-tabulation	Text: Ch. 7 Elaboration handout Norusis: Ch. 10 (Crosstab)
Week 5 2/11	2/11: Univariate	Correlations, Multicollinearity, factor analysis, reliability, building scales/indexes	Text: Ch. 6 Norusis: Ch. 11 (Correlation), 17 (Factor analysis), 18 (Reliability)
Week 6 2/18		Tests for group mean differences	Text: Ch. 4 Norusis: Ch. 7 (Testing Hypotheses), Ch. 8 (T tests) Ch. 9 (One-way analysis of variance)

Weeks 7-8 2/25 & 3/4 Week 9 Spring break no class 3/11 Weeks 10-12 3/18-4/1	 2/25 Bivariate 3/4: Factor analysis & reliability analysis 3/18: Regression #1 3/25: Regression #2 with Interactions 4/1: Regression #3 with influence analysis <u>and</u> examine either direct/indirect effects or nonlinearity as appropriate	**Multiple Regression: OLS** Review logic/fundamentals of regression → Missing data Categorical independent variables (dummy variables) Violations of assumptions (start) → Statistical Interactions Other issues in causality (direct and indirect effects, etc) → Violations of assumptions (continued) Functional form (nonlinearities) → Heteroscedasticity	Text: Ch. 6, 8 Norusis: Ch. 12 (bivariate linear regression), 13 (multiple linear regression) See D2L: Assessing multicollinearity Hair et al., Text: Ch. 11 (causality/path analysis) Text: Ch. 9.1 (nonlinear)
Week 13 4/8	4/8: Detailed outline of Methods and Results section	Logistic regression (dichotomous DV)	Text: Ch. 9.2-9.4 Norusis: Ch. 15 (Logistic)
Week 14 4/15	4/15: Regression #4: Logistic regression	Ordinal regression (ordinal DV) Multinomial regression (multi-categorical DV)	Norusis: Ch. 20 (ordinal) Text: Ch. 9.5 See D2L: multinomial
Week 15 and 16 4/22, 4/29	4/22: Regression #5a and 5b: Ordinal/multinominal	Introduce other analyses: to be announced [options: Poisson and negative binomial regression for count data and PPO in STATA, for multiple DVs: Manova, mancova, repeated measures, seemingly unrelated regression	

Wednesday May 8 at **<u>noon</u>** Papers due