Fundamentals of Data Analysis in Sociology

SOC 104A/205A

Basic techniques for the analysis of sociological data using linear models. Emphasis is on sociological application; the course covers the use of bivariate, multivariate, and multiple-equation linear models in sociological research.

Prerequisites: PSTAT 5 or an equivalent course that covers the following: Probability, random variables, sampling distributions, statistical inference, hypothesis testing, and correlation.

Students who do not meet the prerequisite standard for this course will be dropped. If I cannot independently confirm that you have fulfilled the prerequisite, you will be asked to provide transcript documentation.

Name of the course that fulfills the prerequisite___________________

Year taken_______

College or University where it was taken________________________

Your name________________________________________________

Your email address_________________________________________
Fundamentals of Data Analysis in Sociology

SOC 104A/205A

In this course, you will be introduced to methods designed to formalize and evaluate explanations of social phenomena with linear regression models. During the quarter, you will conduct three research projects that draw on data from the General Social Survey. The course grade is based on these projects and your attendance record.

The course covers the following topics and Chapters in the text:

1. Linear Regression with One Predictor Variable
2. Inferences in Regression Analysis
3. Diagnostics and Remedial Measures
4. Simultaneous Inferences and Other Topics in Regression Analysis (Sections 4.1-4.3)
5. Matrix Approach to Simple Linear Regression Analysis
6. Multiple Regression: Fundamentals
7. Multiple Regression: Selected Related Topics
8. Regression Models with Qualitative Predictors
10. Building the Regression Model: Diagnostics

plus Multiple-Equation Models and Path Analysis (not covered in the text)

Class: Mondays 1-3:50, Ellison 2824
Labs: Thursdays 4-5, 5-6 Ellison 2626
Instructor: Professor Noah Friedkin (friedkin@soc.ucsb.edu)
TA: Stacie Furia (staciefuria@umail.ucsb.edu)
Office Hours: Ellison Hall 2806; by appointment only, 893-2840
Text: Third, Fourth or Fifth Editions of Applied Linear Regression Models (Michael H. Kutner, Christopher J. Nachtsheim and John Neter, Chicago: Irwin)
Projects: Three research projects; each is worth 1/3 of your total grade.
Grading Scale: A+ (97-100), A (93-96), A- (90-92), B+ (87-89), B (83-86), B- (80-82), C+ (77-79), C (73-76), C- (70-72), D+ (67-69), D (63-66), D- (60-62), F (0-59).
Attendance: Starting on Monday, 6 Oct., your total grade will be decreased one grade level (A to A-, A- to B+, etc.) for each unexcused absence from a lecture or laboratory session.
Disability: Students with learning and/or physical disabilities who need extra time on the projects should see me by appointment. Bring documentation about the nature of your disability.
WEEKS 1-3: Simple Linear Regression

29 Sept. Lecture (Linear Regression with One Predictor Variable)
Lab (GSS)

6 Oct. Lecture (Inferences in Regression Analysis; Simultaneous Inferences and Other
Topics in Regression Analysis (Sections 4.1-4.3)
Lab (SPSS; my understanding is that 104B/205B offered in the Winter Quarter will be
based on SPSS)

13 Oct. Lecture (Diagnostics and Remedial Measures)
Lab (Project Analysis)

Project 1: Select a dependent variable and describe your hypothesis about its association with a single
quantitative independent variable. Analyze your hypothesis and the merits of the linear model upon which
the analysis is based. Do this in 5-10 pages. Attach the SPSS output upon which your findings and
conclusions are based. Project 1 is due 20 Oct.

WEEKS 4-6: Multiple Linear Regression

20 Oct. Lecture (Matrix Approach to Simple Linear Regression Analysis)
Lab (Project Analysis)

27 Oct. Lecture (Multiple Regression: Fundamentals)
Lab (Project Analysis)

3 Nov. Lecture (Multiple Regression: Selected Related Topics)
Lab (Project Analysis)

Project 2: Select a dependent variable and describe your hypotheses about its associations with each of
two or more quantitative independent variables. Analyze your hypotheses and the merits of the linear model upon which the analysis is based. Do this in 5-10 pages. Attach the SPSS output upon which your findings and conclusions are based. Project is due on 17 Nov.

WEEKS 7-10: Qualitative Predictors and Model Construction

10 Nov. Lecture (Regression Models with Qualitative Predictors)
Lab (Project Analysis)

17 Nov. Lecture (Building the Regression Model: Fundamentals)
No Lab; Thanksgiving Holiday

24 Nov. Lecture (Building the Regression Model: Diagnostics)
Lab (Project Analysis)

1 Dec. Lecture (Multiple-Equation Models and Path Analysis)
Lab (Project Analysis)

Project 3: Select a dependent variable and describe your hypotheses about its associations with each of
two or more quantitative independent variables and one or more qualitative independent variables. Analyze
your hypotheses and the merits of the linear model upon which the analysis is based. Do this in 5-10 pages.
Attach the SPSS output upon which your findings and conclusions are based. Project 3 is due on 8 Dec.