This course has three goals: 1) to teach students the statistical theory and estimation procedures underlying multivariate regression analysis; 2) to enable students to read the sociological literature which uses regression analysis and interpret results using these models; 3) to give students the data analysis tools which will allow them to undertake their own research using linear regression. Special emphasis will be placed on the aspects of regression that are somewhat tangential theoretically but that figure prominently in sociological research: for example, non-linearities, dummy variables that allow analysis with and of categorical traits and interactions that allow for the estimation of different slopes for different sub-populations. Special emphasis will be placed on the assumptions underlying regression, or whether those assumptions have been violated, and the appropriate techniques for estimating the model when one or more of the assumptions have been violated. In nearly weekly assignments, students will analyze data sets provided by the instructor. A particular goal of this course is to enable you to understand results published in sociological journals simply by examining the tables. Another is to be able to meet the rather strict standards that good journals set for the use of seemingly basic regression technique.

Assignments and Evaluations
The course will be conducted as lecture course, punctuated by lab demonstrations and discussion. A particular goal of this course is to enable you to understand results published in sociological journals simply by examining the tables. There will be weekly assignments, a midterm exam, and a final term paper. The still tentative weighting of assignments toward finals grades is as follows:

- Exercises/assignments: 50%
- Midterm: 15%
- 2nd test: 15%
- Take Home Final: 10%
- Participation: 10%

Some reading will be handed out and others will be available at Reserves Direct, but for now only the following book is required:


All readings should be read diligently for understanding by the class for which they are listed in the syllabus. This will aid learning and allow for a degree of student participation.

Schedule and Readings.

**Jan. 16: Intro/review for regression; and intro to Stata**
Bivariate essential; basic equation; intercept and slope estimates, standard errors;
Gujarati: Sections 3.1-3.4; 5.7-5.8; 3.5

**Jan. 23: Regression: Bivariate Elaborations and Multivariate basics.**
Assumptions and costs of violations Partial, R-squares, special ts, Fs for groups,
Gujarati: Sections 4.1-4.3, 4.5; 5.11, 7.1-7.2, 7.8, 8.5, 8.6
Jan. 30: STATA multivariate regression; Logit
Specification, bias and inefficiency, multicollinearity
Gujarati: Sections 7.7, 13.3; Chapter 10;
Sections 15.1-15.8 (especially 15.5-15.8) logit.

Feb. 6: ANOVA: Iversen and Norpoth, Analysis of Variance, selections (Distributed in class)
Hays and Winkler, Statistics, selections (Distributed in class)
D. N. Gujarati, BE, pp. 140-142.

Feb. 13: Nominal regressors; and nominal-continuous interactions
Gujarati: Sections 9.1-9.6 (Gujariti 4th edition only; owners of 3rd get handout copy)
J. Jacobi and R. Turrisi, Interaction Effects in Multiple Regression, pp. 16-43 (Handout)

Feb. 20-27 More on interactions (nominal-continuous and all continuous) and review
J. Jacobi and R. Turrisi, Interaction Effects in Multiple Regression, pp. 1-16, 32-36. (Handout)

Mar. 6 Midterm (in-class)

Mar. 20: Two-stage Least Squares and Instrumental Variables Pooled data
Gujarati: Sections 18.3-18.5, 19.1-19.2; 19.1-19.2 (Browse on ank condition and huasman test)

Mar. 27-Apr. 3: Time series
Gujarati: BE, Ch. 12; 17.1-17.4, 17.6, 17.8-17.10, 17.15;
Selection from on Prais-Winston from C. Ostrom, Time-Series Analysis (Handout).

April 10-17: Pooled data analysis, I.
Pooled Data Analysis, Overview, GLS and Parks-Kmenta
A. Hicks, "Pooled Data Analysis," from T. Janoski and A. Hicks, Comparative Political Economy of the Welfare State (Handout)
Selections on “xtgls” and “xtpcse” from Stata, Cross-Sectional Time-Series (Stata 9.2)

April. 24 Wrap up of Assignments

Short In-class Final Delivery of Take Home
D. N. Gujarati, Basic Econometrics (BE), Ch. 1 on "The Nature of regression analysis"

May 1 Q&A and Delivery of Take Home