PS 233 Intermediate Political Analysis

Aldrich: 660-4346
Brehm: 660-4336

This course is a thorough examination of regression models of politics. We begin with an introduction to matrix algebra with applications to social and political phenomena. Using matrix algebra, we discuss the generalized least squares regression model - the assumptions we make when using GLS models, when we violate these assumptions, and what we can do to restore our ability to draw valid inferences using GLS models. Students will complete weekly problem sets involving a mixture of hand and computer calculations, interpretation and presentation of results.

The grading for this class will be based on weekly assignments. These assignments will be a mix of textbook problems, criticisms of published articles, and analysis of political data. There will be a take-home final exam.

The following books are on order in the Duke University Textbook Store:

Kennedy, *A Guide to Econometrics*
Namboodiri, *Matrix Algebra*
Achen, *Interpreting and Using Regression Analysis*
Aldrich and Nelson, *Linear Probability, Logit and Probit*
Asher, *Causal Modeling*

We will be covering the following topics:

Matrix Algebra
- Namboodiri, *Matrix Algebra*

Algebra of Expectations
- Handout.

Properties of Estimators
- Kennedy, Ch. 2

Introduction to Ordinary Least Squares
- Achen, pp. 7–29
- Kenendy, Ch. 3

Hypothesis Testing
- Achen, pp. 30–50
- Kennedy, Ch. 4

Model Specification
- Achen, Ch. 5
- Kennedy, Ch. 5, 6, 14

Gauss-Markov, BLUE
- Handout.

Nonzero Expected Disturbances
- Kennedy, Ch. 7

Heteroskedasticity
- Kennedy, Ch 8.1–8.3

Autocorrelation
- Kennedy, Ch 8.4, 9.4

Multicollinearity
- Kennedy, Ch. 11

Measurement Error
- Kennedy, Ch. 9.1–9.3

Dichotomous Dependent Variables
- Aldrich and Nelson, *Linear Probability, Logit and Probit*
- Kennedy, Ch. 15

Introduction to Causal Models
- Asher, *Causal Modeling*
- Kennedy, Ch. 10