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## **PS 150C/350C: POLITICAL METHODOLOGY 3**

This class picks up where PS150B/350B left off. We will begin with a consideration of maximum likelihood estimation and models for discrete responses. We will start by quickly reviewing the consideration of binary response models we saw in 150B/350B, and then cover other LDV (limited dependent variable) models, ordered and unordered or “multinomial” outcomes. I then propose to cover the following topics:

- counts (e.g., the number of Supreme Court appointments per presidential administration; the number of militarized interstate disputes per year)
- durations (models of how long things last, such as governments, peace, incumbents, countries)
- panel data and time-series/cross-sectional data (especially useful for students with interests in comparative political economy)
- systems of equations, especially for handling reciprocal causality (e.g., estimating the effects of money in congressional elections)
- matching-based estimators of causal effects in non-experimental and observational data
- an introduction to multivariate analysis, i.e., models and methods for measurement and/or data reduction, as typically arise when combining various indicators to create scale measures of concepts (e.g., a country’s level of democracy, a legislator’s ideology, a survey respondent’s level of racial prejudice). The techniques to be examined here include principal components, factor analysis, and item-response models.

We won’t have enough time to cover all of this ground. I am open to suggestions as to what to drop: my preference is probably to drop the systems of equations material in favor of a look at matching and multivariate analysis.

## TEXTS

There is no prescribed text for this class. An accessible treatment of the the LDV material appears in:

Long, J. Scott. 1997. *Regression Models for Categorical and Limited Dependent Variables*, Sage Publications, Thousand Oaks, California.

Other texts at this level include:

- Hosmer, David W. and Stanley Lemeshow. 2000. *Applied Logistic Regression*. Wiley: New York.
- Hosmer, David W. and Stanley Lemeshow. 1999. *Applied Survival Analysis*. Wiley: New York.

Slightly more advanced, but a classic work on the subject is

Agresti, Alan. 2002. *Categorical Data Analysis*. Wiley: New York.

For texts covering the other material in the class, “omnibus-style” intermediate econometric texts are probably your best bet. For instance, you should consider investing in one or more of the following:

- Cameron, A. Colin and Pravin K. Trivedi. 2005. *Microeconometrics: Methods and Applications*. Cambridge University Press: New York.
- Greene, William H. *Econometric Analysis*. Prentice-Hall: New York.
- Hensher, David A, John M. Rose and William H. Greene. *Applied Choice Analysis: A Primer*. 2005. Cambridge University Press: New York.
- Wooldridge, Jeffrey M. 2002. *Econometric Analysis of Cross Section and Panel Data*. MIT Press: Cambridge, Massachusetts.

On multivariate analysis, the following books are useful introductions:

- Lattin, James, J. Douglas Carroll, and Paul E. Green. 2002. *Analyzing MULTivariate Data*. Duxbury: Pacific Grove, California.
- Mardia, K. V., J. T. Kent and J.M. Bibby. 1980. *Multivariate Analysis*. Elsevier: London.

Some useful R references for this class include:

- Faraway, Julian J. 2006. *Extending the Linear Model with R: Generalized Linear, Mixed Effects and Nonparametric Regression Models*. Chapman and Hall/CRC: Boca Raton, Florida.

- Pinheiro, José C. and Douglas M. Bates. 2000. *Mixed-Effects Models in S and S-PLUS*. Springer: New York.
- Venables, William N. and Brian D. Ripley. 2003. *Modern Applied Statistics with S*. 4th edition. Springer: New York.

# ASSESSMENT

We will have

1. four or five homeworks, comprising data analysis and writeups
2. a final exam

with roughly a 60-40 weighting given to the homeworks and the exam, respectively.