

## Part Two: Advanced Techniques and Topics

*In parentheses are indicated the pages in your textbook that roughly correspond with the lectures.*

- I. Preliminaries
  - A. Discussion of First Exam
  - B. Details about Term Paper
  - C. Overview of Part Two
  
- II. Categorical (Nominal, Qualitative) Measures (pp. 302-351)
  - A. Dependent Variables
    - 1. Multiple Regression
    - 2. Discriminant Analysis
    - 3. Logistic Regression
  - B. Independent Variables
    - 1. Single Categorical Variable
      - a. Dichotomous: Dummy Variable Coding
      - b. Polytomous: Dummy, Effect, and Orthogonal Coding
    - 2. Multiple Categorical Variables
      - a. Dummy Coding
      - b. Significance Tests: Orthogonal versus Nonorthogonal Categories
    - 3. Categorical and Numerical Variables Combined
      - a. Definition and Interpretation
      - b. Significance Tests
  
- III. Multiplicative Functions
  - A. Interaction Effects (pp. 255-300, 354-388)
    - 1. Three Types
      - a. Nominal  $\times$  Nominal (i.e., Qualitative  $\times$  Qualitative or Categorical  $\times$  Categorical)
      - b. Nominal  $\times$  Numerical (i.e., Qualitative  $\times$  Quantitative or Categorical  $\times$  Continuous)
      - c. Numerical  $\times$  Numerical (i.e., Quantitative  $\times$  Quantitative or Continuous  $\times$  Continuous)
    - 2. Complications
      - a. Multicollinearity
      - b. Significance Tests
      - c. Interpretation: What does “control” mean with multiplicative terms in the equation?
  - B. Curvilinear Relations (pp. 193-214, 221-251)
    - 1. Multiplicative Terms in a Single Numerical Variable
      - a. Quadratic Functions
      - b. Higher-Order Polynomial Functions
    - 2. Precautions
      - a. Multicollinearity
      - b. Confounding Curvilinear and Interaction Effects
      - c. Alternatives to Polynomial Functions
  - C. Combined Models
    - 1. Nonadditive Nonlinear Causal Effects
    - 2. Precautions
  
- IV. Complications
  - A. Outliers (pp. 390-418)
  - B. Violated Assumptions (pp. 117-150)
  - C. Missing Data (pp. 431-450)
  
- V. Review and Exam II

