Multivariate Statistics for Psychology (542)
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Required Texts and Material:

Required: (a) Advanced and Multivariate Statistical Methods (3rd Edition) 2005 by Craig Mertler & Rachel Vannatta

(b) SPSS (I suggest using version 12.0 or higher) Program must be able to perform the following SPSS procedures: a) regression: linear and binary logistic, b) general linear model, c) classify, and d) data reduction: factor


This class is designed to provide a working knowledge of multivariate statistics. We will focus on the appropriate use and interpretation of a variety of multivariate statistics using SPSS. Your task will be to become familiar with the various statistical techniques so you know when to use them, how to use them, and how to interpret them. You will receive some instruction in SPSS, but this is not a course on SPSS – so you may have to do some self-learning regarding the SPSS program.

Class Goals

1. to become familiar with a variety of multivariate techniques, particularly linear regression binary logistic regression, discriminant analysis, multivariate analysis of variance, repeated measures analysis, and factor analysis.
2. to learn how to run SPSS for each statistical technique that we discuss in class.
3. to learn how to interpret the statistical output you obtain from each SPSS program.
4. Finally, and most importantly, to know the statistical analyses that can be properly used to address a specific research question.

In this class you will be expected to read the assigned material prior to class, participate in class discussions, complete a take-home assignment for each statistical technique we cover (10 assignments each worth 10 points), complete 2 closed book/closed notes exams (150 points each). The due dates for take-home assignments are listed under the “Topic and Assignment Order.” The first exam will be held October 20 (Tuesday) at 6:00 PM. The second exam will be held during the final exam period – Monday, December 14 at 3:15 PM. Exams will be scheduled for 2 hours.

The grading scale will be:

90% and above = A
80% to 90% = B
70% to 80% = C
60% to 70% = D
Below 60% = F
**Topic and Assignment Order**

1. **Introduction to Course and Multivariate Statistics (Chapter 1, 2, & 3)**  
   Assignment 1: Chapter 3 Exercises (#2 and #3) (Due: 9/9/09)

2. **Multiple Regression (Chapter 7 & 8)**  
   Assignment 2: Chapter 7 Exercises (#1, #2d through #2i) (Due: 9/23/09)  
   Assignment 3: Chapter 8 Exercises (#1 through #4) (Due: 9/30/09)

3. **Logistic Regression (focused on Binary) (Chapter 11)**  
   Assignment 4: Chapter 11 Exercises (#3) (Due: 10/7/09)

4. **Principal Components and Factor Analysis (Chapter 9)**  
   Assignment 5: Chapter 9 Exercises (#1) (Due: 10/14/09)  
   **FIRST EXAM (10/20/09 at 6:00 PM)**

5. **Discriminant Analysis (Chapter 10)**  
   Assignment 6: Chapter 10 Exercises (#2 through #9) (Due: 11/4/09)

6. **Multivariate Analysis of Variance (MANOVA) (Chapter 4. 5, & 6)**  
   Assignment 7: Chapter 4 Exercises (#1b through 1d and #2) (Due: 11/18/09)  
   Assignment 8: Chapter 5 Exercises (#3 and #5) (Due: 11/25/09)  
   Assignment 9: Chapter 6: Exercises (#1d, 2d, & 2e) (Due: 12/2/09)

7. **Repeated Measures – Univariate and Multivariate Approaches**  
   Assignment 10: Exercises from handout provided by Dr. Holm (Due: 12/9/09)  
   **SECOND EXAM (12/14/09 at 3:15 PM)**