Multivariate Analysis I

HUDM 6122

Spring 2008	HM234, Tuesday, 1-2:40
Instructor:	Lawrence T. DeCarlo
Office:	Grace Dodge 453h
Office hours:	Tues. 3:30-5:00, Thurs. 1:30-3:00, and by appointment
Phone:	212-678-4037
Email:	decarlo@tc.edu
Website:	http://www.columbia.edu/~ld208/

Required Text: *Applied Multivariate Statistics for the Social Sciences*, 4th edition. (2002). James P. Stevens. Mahwah, NJ: Lawrence Erlbaum Associates.

Recommended: *Handbook of Applied Multivariate Statistics and Mathematical Modeling*. (2000). Howard E. A. Tinsley & Steven D. Brown (Eds.). New York: Academic Press. (has chapters discussing various multivariate analyses)

Advanced: *Applied Multivariate Statistical Analsyis*, 5th edition. (2002). Richard A. Johnson & Dean W. Wichern. Englewood Cliffs, NJ: Prentice Hall.

Multivariate Analysis. (1979). K. V. Mardia, J. T. Kent, & J. M. Bibby. New York: Academic Press.

Objectives

An introduction to multivariate analysis, including the necessary statistical and mathematical background. Topics covered include a review of univariate statistics, multivariate normality, matrix algebra, univariate and multivariate regression, multivariate analysis of variance, multivariate analysis of covariance, and exploratory factor analysis. Other possible topics include canonical correlation, repeated measures analysis, and categorical data analysis. The techniques will implemented using SPSS 14 and SAS 9.

A course in multivariate analysis traditionally tends to focus on techniques that can be described as being primarily exploratory and descriptive. Other courses (latent structure analysis; multilevel and longitudinal data analysis) focus on techniques that are more confirmatory and based on models/theory. In many situations, both exploratory and confirmatory techniques are likely to be useful.

Readings

The readings in Stevens, in the order they will be covered, are as follows:

Chapter 1 Introduction

Chapter 2	Matrix algebra
Chapter 3	Multiple regression
Chapter 4	Two group MANOVA
Chapter 5	Multiple group MANOVA
Chapter 6	Assumptions in MANOVA
Chapter 8	Factorial MANOVA
Chapter 9	MANCOVA
Chapter 12	Canonical Correlation
Chapter 11	Exploratory and confirmatory factor analysis

Requirements and Grading

You should be familiar with regression analysis, working with data in a spreadsheet, and have some experience running statistical analysis on a computer. Grades will be determined by homework (20%) and in-class quizzes (80%).

Services for Students with Disabilities

The College will make reasonable accommodations for persons with documented disabilities. Students are encouraged to contact the Office of Access and Services for Individuals with Disabilities for information about registration (166 Thorndike Hall). Services are available only to students who are registered and submit appropriate documentation." As your instructor, I am happy to discuss specific needs with you as well.

IN Incomplete

The grade of Incomplete is to be assigned only when the course attendance requirement has been met but, for reasons satisfactory to the instructor, the granting of a final grade has been postponed because certain course assignments are outstanding. If the outstanding assignments are completed within one calendar year from the date of the close of term in which the grade of Incomplete was received and a final grade submitted, the final grade will be recorded on the permanent transcript, replacing the grade of Incomplete, with a transcript notation indicating the date that the grade of Incomplete was replaced by a final grade.

If the outstanding work is not completed within one calendar year from the date of the close of term in which the grade of Incomplete was received, the grade will remain as a permanent Incomplete on the transcript. In such instances, if the course is a required course or part of an approved program of study, students will be required to re-enroll in the course including repayment of all tuition and fee charges for the new registration and satisfactorily complete all course requirements. If the required course is not offered in subsequent terms, the student should speak with the faculty advisor or Program Coordinator about their options for fulfilling the degree requirement. Doctoral students with six or more credits with grades of Incomplete included on their program of study will not be allowed to sit for the certification exam.