Spring 2013 Stat 476/576: Multivariate Analysis

Instructor: Dr. Yan Lu, luyan@math.unm.edu

Time and Location: 3:30pm-4:45pm TR, Dane Smith Hall 127

Office hours: SMLC 316, 2:00pm-3:00pm TR or by appointment

Prerequisites: Stat 428/528 or Stat 440/540

Textbook: Applied Multivariate Statistical Analysis (Johnson & Wichern), 6th ed., ISBN: 0131877151

Course Description and Topics

This course will cover the Multivariate Normal Distribution, Multivariate Analysis of Variance, Principal Components, Factor Analysis, Discrimination/Classification, and Clustering. After completing the course, students should be familiar with standard multivariate techniques and be comfortable applying these methods to data using software.

Tentative Schedules:

Chapter 1 and Chapter 2: Aspects of Multivariate Analysis, Matrix Algebra and Random Vectors (3 classes)

Chapter 4: Multivariate Normal Distribution (4 classes)

Chapter 5: Inferences About a Mean Vector (3 classes)

Chapter 6: Comparisons of Several Multivariate Means (4 classes)

Chapter 8: Principal Components (4 classes)

Chapter 9: Factor Analysis (3 classes)

Chapter 11: Discrimination and Classification (3 classes)

Chapter 12: Cluster Analysis (3 classes)

Other classification method: Random Forests (1 class)

Computing

R will be used in this class, R package can be downloaded from website for free http://www.r-project.org

Grading: Grading: Homework, 40% (bi-weekly homework, one problem of each homework will be randomly picked up and graded, completing of the homework will also account for grades). Midterm (will be announced in class), 30%; Final exam (May 9th, 3:00pm-5:00pm), 30%. Final exam is not comprehensive and will cover the materials after midterm.

	Stat 576	Stat 476
A	90%-100%	85%-100%
B	80%-89%	70%-84%
C	65%-79%	60%-69%
D	under 64%	under 60%