



# How To Do Discriminant Analysis

Clustering and Classification

Lecture 5

2/21/06



# Today's Class

- Doing discriminant analysis in R
- Presentation and discussion of Anderson (2005)



# Scheduling Issues

- We are running a day late on time, so I propose we drop Additive Trees.
- I am really looking forward to the mixture portion of the semester.
  - Especially after this weekend.
  - Not many places offer mixture courses.

<u>Date</u>	<u>Topic</u>
1/24	Course Overview
1/26	Introduction to SAS (Fraser Hall computer lab)
1/31, 2/2	Introduction to R (here in class, augmented by your home computers).
2/7	Introduction to Clustering/Classification
2/9	Cluster Validation
2/14	Discriminant Analysis Lecture
<b>2/16</b>	<b>No Class (I am at a conference on measurement)</b>
2/21	Discriminant Analysis Demonstration
2/23, 2/28	Hierarchical Clustering Methods
3/2, 3/7	K-means Clustering Methods
3/9	Taxometrics
3/14, 3/16	Latent Class Analysis
<b>Initial Project Proposal Due Tuesday, 3/7</b>	
<b>3/21, 3/23</b>	<b>No Class (Spring Break)</b>
3/28, 3/30	Latent Profile Analysis
4/4, 4/13	Model Estimation (EM and MCMC algorithms)
4/6, 4/11	<b>No Class (I am at NCME)</b>
4/18, 4/20	Introduction to Finite Mixture Models
<b>Final Project Proposal Due Tuesday, 4/18</b>	
4/25	Finite Mixture Models
4/27	Combining Methods: Growth Mixture Models
5/2, 5/4, 5/9, 5/11	Models for Cognitive Diagnosis



# Discriminant Analysis Functions

- There are a couple of different functions to do DA in R.
- The main set of functions come from an R library named MASS.
  - Created by Venables and Ripley
  - Use Fisher's linear DA (similar in concept to canonical DA discussed last time).
- Another set of functions (not in library form) can be downloaded from Roger Peng's website
  - <http://sandybox.typepad.com/reproducible/>



# A Look at Canonical DA

- We will now use R to do Canonical DA.
- The example files can be found on Blackboard.
  - I will hand out the files on a USB drive.



# Wrapping Up

- DA in R can be done relatively easily.
- DA is a fun technique.



# Next Time

- Hierarchical clustering methods (lecture).