STAT 32950-24620 Midterm, Thursday, April 20, in class

Midterm Topics

The midterm exam will be on topics covered in the first four weeks, corresponding to assignments 1-4.

- Multivariate data basics
  Multivariate data descriptive measures
  Multivariate random vector and matrices, properties and measures

- Multivariate inference, including

  Hotelling's T^2, Inference on the means, one or two samples.
  Inference on multivariate mean, Multivariate analysis of variance (MANOVA).
  Confidence Regions and simultaneous confidence intervals for component means.

- Multivariate normal distributions and important properties (e.g., conditional distribution, likelihood)

- Principal Component Analysis (PCA).

- Factor model for (orthogonal) factor analysis (FA), principal component method and ML method.

- Canonical Correlation Analysis (CCA).

- Multidimensional Scaling (MDS). Classical MDS method. Similarity measures.

- Correspondence Analysis (derivations are not required).

- Multivariate linear regression model basics.

- Backgrounds, including

  Matrix algebra
  Conditional probability and conditional expectations
  Common probability distributions