Math 6266

Statistical Linear Model, Fall 2012

Lecture: MW 14:05-14:55pm Skyles 256

Office hours: MW 3:00-4:00 Skiles 228

General Information

Click here for the syllabus.

Course outline:

- **Reminder linear algebra:** Orthogonal projections, Cochran's theorem, Representations theorems.
- **Gaussian vectors:** Random vectors, expectation and covariance, Characterization of Gaussian vectors, marginal and conditional distributions, Cochran's theorem (probabilistic version).
- **Statistical estimation and testing theory:** Least squares estimation, geometric interpretation, Gauss-Markov optimality theorem, maximum likelihood estimation and testing, minimax properties, James-Stein estimator.
- **Shrinkage estimation procedures, reduction of dimension:** Thresholding, penalized empirical risk minimization, oracle inequalities, prediction, variables selection.
- **Introduction to R:** Linear regression, model and variable selection with R.

Test tentative dates

- **First midterm:** September 24th
- **Second midterm:** October 31st

Resources

All announcements will be made through ---T-Square