MATH 6267 SYLLABUS  
Spring 2011

Course Number: Math 6267

Course Name: Multivariate Statistical Analysis  
Standard setting and High-dimensional theory

Lecture Time: MW 3:05-4:25 pm

Lecture Room: 256

Instructor: Pr. Karim Lounici  
Office: Skiles 228  
Email Address: klounici AT math.gatech.edu


Office Hours: MW 4:30-5:30pm and by appointment.

Contacting me: You can contact me by email.

Prerequisites: Math 4262

Course Objective: The first part of the course concerns the classical multivariate theory. The goal is to present standard results and techniques on multivariate gaussian vectors, linear regression and reduction of dimension. The second part of the course treats very recent developments on high dimensional statistics. The goals are to become familiar with the most important and up to date methods of variables selection and aggregation in the field of high-dimensional statistics, to understand their theoretical and computational merits and limitations in a large array of statistical models, e.g., parametric and non parametric regression, classification, density estimation.

Textbook: The first part of the course will be at the level of Anderson, An Introduction to Multivariate Statistical Analysis. The second part of the course is based on very recent research and there is not yet any textbook that covers it. A comprehensive list of research papers and related books will be provided.

Course Outline:

Below is a tentative outline of the topics we will treat in this class.


Grading Policies: There will be a maximum of three homeworks and three tests. Late homeworks will NOT be accepted for grading (justified emergencies excepted). Discussing the problems with everyone is encouraged but everyone needs to hand in a personal copy. Some homeworks will require using R software (this is a free software and a short tutorial will be provided).

The (tentative) final grade will be based on the following rules:

Homeworks: 40%, Tests: 60%

Letter grades will be based on the accumulated points according to the standard cutoffs: A:90-100, B:80-89, C:70-79, D:60-69, F:0-59.

Honor Code: All students are expected to comply with the Georgia Tech Honor Code. Any violations of the Georgia Tech Honor Code will be submitted directly to the Dean of Students. The Georgia Tech Honor Code is available at http://www.honor.gatech.edu/

References


