STAT 701 - Spring 2012

Course Syllabus

Time and Place: TuTh 5-6:15 PM, MTH 1311

Course Title: Mathematical Statistics II


Instructor: Prof. Abram Kagan

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STAT 701 is the second part of the sequence STAT 700-701 and, in addition to the new material, will cover in detail some items that were only briefly discussed in STAT 700.

It is strongly suggested that the students attend Statistics seminar that meets on Thursday from 3:30 - 4:30 PM in MTH 1313. With STAT 700 as a background, you’ll be able to understand general ideas (if not details) of the talks.

Homework will be regularly assigned and graded.
Several in-class and take home exams will be given.
The final will be a comprehensive take home exam.
Each student will have to make a 15 min presentation based on material closely related to the contents of STAT 701.
Course Outline

1. **Discussion** of the problems given in the January 2012 Ph. D. qualifying exams in Statistics.

2. **Elements of semi-parametric methods.** Natural exponential families (NEFs) with generators estimated from independent samples as an example.

3. **Elements of categorical data analysis and generalized linear models.**
   Chi-square tests. Contingency tables.

4. **Inference from large samples.**
   Asymptotic behavior of MLEs and estimators generated by estimating equations.
   Likelihood ratio (LR) test, Rao’s test, Wald’s test.
   Confidence sets based on likelihoods.

5. **Elements of nonparametric methods.**