Mathematical Statistics, MA 486/586-1G Spring 2008

Class meets Mondays, Wednesdays, and Fridays 2:00pm-2:50pm in Room HH 124

Instructor: Dr. Nikolai Chernov
Office: 492 A Campbell Hall, ph. 934-2154 or 934-8613
Office hours: Mondays and Fridays, 11am-noon, and by appointment
E-mail: chernov@math.uab.edu

Text: Hoggs & Tanis *The Probability and Statistical Inference*, 7th Ed.

Grading policy: (One of the two schedules that yields a better grade for you)

Homework	10 % or	0 %
Computer Project	10 %	10 %
Midterm I (February 8)	25 %	30 %
Midterm II (March 21)	25 %	30 %
Final (April 25, 1:30-4:00)	30 %	30 %

Computer Projects: each student needs to do one computer project during the term. You can select a project from the list offered by the instructor or offer one of your own. But the project must be approved by the instructor before you do it. Only one student can work on each project! You can do projects in the mathematics computing lab that will be soon set up in the HH building. You can use MATLAB, Statistical Toolbox (every Mac computer in the lab has MATLAB installed). To use other software, you need the instructor's permission. Projects can be submitted any time before the final exam, and may be resubmitted (more than once) after being graded, for full credit.

Homework: Problems will be assigned weekly on Mondays, unless announced otherwise. Homework will be due the next Monday after assignment. Corrected and graded homework will be returned in the next class meeting. One (lowest) homework score will be dropped. Half credit is given for late homework. You can use any software (including MATLAB) for doing homework problems.

To 586 students: You are taking this course at a *graduate* level! You will be given extra, more difficult, assignments periodically. Unlike regular homework assignments, those extra assignments are *mandatory*. The extra assignments will make 15% of your course grade, the rest will count for 85%, scaled appropriately. The 586-level problems can be turned in any time before (or on) the final exam. The 586-level problems can be resubmitted after being graded, for full credit.

All tests in this course are **open-book** and **open-notes**. You may use a calculator, and you will actually need one.

Syllabus: Basic sampling and data analysis, Simulation, Point estimation, Confidence Intervals, Sufficient statistics, Rao-Cramer bound, Tests for binomials, Tests for normals, Goodness-of-fit test, Contingency tables, Two factor analysis, Regression, Order statistics, Nonparametric methods: Wilcoxon test, Run test, Kolmogorov-Smirnov test.

The syllabus is tentative, some changes are possible.

Computer projects must be submitted in a "presentable" form. Include a print-out of the MATLAB code, a print-out of the computer output (including clear readable graphics), and a one-page report (hand-written or typed on a computer).

Classnotes, homework assignments, the list of computer projects, past exams (some with answers) are available at

www.math.uab.edu/~chernov/teach.html

(or just go to www.math.uab.edu, click on "people", then "chernov", then "teaching").

MATLAB has good on-line help. In addition, various MATLAB manuals are available on-line from many web sites. In particular, check out the official MathWorks (the producer of MATLAB) web page:

Help on general MATLAB commands can be found at

http://www.mathworks.com/access/helpdesk/help/techdoc/matlab.html

Help on Statistical Toolbox commands can be found at

http://www.mathworks.com/access/helpdesk/help/toolbox/stats/

If you happen to come across a particularly good MATLAB manual on the Internet, please share it with other students and the instructor.

Welcome to MA 486/586 and best of luck to you all.