

**Mathematical Statistics, MA 486/586-2D**     Spring 2006

Class meets Tuesdays and Thursdays 12:30pm-1:45pm in Room 135 EB

**Instructor:** Dr. Nikolai Chernov

**Office:** 492 A Campbell Hall, ph. 934-2154 or 934-8613

**Office hours:** Tuesdays and Thursdays 11-12pm (tentative), and by appointment

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

**Grading policy:**

Computer Project	10%
Homework or an extra Computer Project	10%
Midterm I (February 9)	25%
Midterm II (March 9)	25%
Final (May 2, 10:45-1:15)	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 computer lab (CB 112) by using MATLAB, Statistical Toolbox. To use another software, you need the instructor's permission. Projects can be submitted any time before the final exam, and may be resubmitted after being graded, for full credit.

**Homework:** Problems will be assigned weekly on Tuesdays, unless announced otherwise. Homework will be due the next Tuesday 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 solving homework problems. Instead of doing homework, you can opt for an extra computer project.

**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. You need to do 90% of the 586-level problems to get full credit for this part of the course.

All tests in this course are **open-book** and **open-notes**.

You may use a calculator, and you will actually need one.

*Welcome to MA 486 and best of luck to you all.*

**Syllabus:** Sample characteristics, 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, Non-parametric 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](http://www.math.uab.edu/chernov/teach.html)

(or just go to [www.math.uab.edu](http://www.math.uab.edu), click on “people”, then “chernov”, then “teaching”).

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

General MATLAB commands can be found at

[www.mathworks.com/access/helpdesk/help/techdoc/math\\_anal/math\\_anal.shtml](http://www.mathworks.com/access/helpdesk/help/techdoc/math_anal/math_anal.shtml)

Statistical Toolbox commands can be found at

[www.mathwork.com/access/helpdesk/help/toolbox/stats/stats.shtml](http://www.mathwork.com/access/helpdesk/help/toolbox/stats/stats.shtml)

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