# Mathematical Statistics,   MA 486-1E    Spring 2004

Class meets Mondays, Wednesdays, Fridays 12:20pm-1:10pm in Room 102 CB15

**Instructor:**  Dr. Nikolai Chernov
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**Office hours:** Mondays and Fridays, 10-11am, and by appointment
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**Text:** Hoggs & Tanis *The Probability and Statistical Inference*, 6th Ed.

**Grading policy:**

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|---|---:|
| Computer Project | 10% |
| Homework or an extra Computer Project | 10% |
| Midterm I (February 6) | 25% |
| Midterm II (March 12) | 25% |
| Final (May 3, 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.  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 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 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. Those extra assignments will make 15% of your course grade, the undergraduate work will count for 85%. The 586 problems can be submitted any time before the final exam, and may 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 may actually need one.

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

**Syllabus:** Simulation, Display of data, Point estimation, Sufficient statistics, Rao-Cramer bounds, Confidence Intervals, Tests for binomials, Tests for normals, Goodness-of-fit test, Contingency tables, Two factor analysis, Regression, Order statistics, Non-parametric methods: Wicoxon 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).

Homework assignments, the list of computer projects, past exams (some with answers) are available at
<div align="center">www.math.uab.edu/chernov/teach.html</div>
(or just go to www.math.uab.edu, click on "people", then "chernov", then "teaching").

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
<div align="center">www.mathworks.com/access/helpdesk/help/techdoc/math_anal/math_anal.shtml</div>

Statistical Toolbox commands can be found at
<div align="center">www.mathwork.com/access/helpdesk/help/toolbox/stats/stats.shtml</div>

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