

STAT 400 - Sections 0211, 0232, 0241 - Fall 2007

Course Syllabus

Time and Place : **TuTh 2:00 PM - 3:15 PM, ARM 0135**

Time and Place of Discussion:

- Section 0211: Monday, 8:00 - 9:15 AM, MTH B0429
- Section 0232: Monday, 11:00 AM - 12:15 PM, PHY 0405
- Section 0241: Monday, 1:00 - 2:15 PM, MTH B0425

Course Title: **Introduction to Probability and Statistics I**

Textbook: **Jay L. Devore, Probability and Statistics for Engineering and Sciences, 7-th ed., Duxbury**

Instructor: **Prof. Abram Kagan**

Office and phone: **Room MTH 2306, x5-5456**

Office Hours: **TuTh 11 - 12 AM or by appointment**

E-mail: **amk@math.umd.edu**

Prerequisite: **MATH 140 or consent of the instructor**

STAT 400 is an introduction to basic concepts of probability and statistics presented at a mathematically moderate level. All the concepts and results will be illustrated with numerous examples aimed at promoting understanding the world of random phenomena.

Students with special interest in statistics are recommended to take the sequence STAT 400-401.

Grading policy

Homework will be assigned, collected by the TAs on the due date and graded. The total score for the homework is 350 points (out of 1000).

Four quizzes each worth 25 points will be given. Four 50 minute exams each worth 100 points will be given; the three best will count. The **tentative** dates of the exams are September 20 (Thursday), October 11 (Thursday), November 8 (Thursday), and December 6 (Thursday).

The final exam is on Monday, December 17 from 10:30 AM - 12:30 PM and is worth 250 points.

Attendance policy

The students are responsible for all the material covered in class.

If a student misses an exam or a quiz due to illness, religious observances, participation in university activities at the request of university authorities, or compelling circumstances beyond the student's control, the student must supply appropriate documentation in which case a makeup will be given at a convenient time.

A special request

Out of respect for other students, please no food in the class.

Topics to be covered:

- Algebra of events. Probability, conditional probability. Bayes' Theorem. Predictive value of screening tests. Independence (Weeks 1, 2, 3).
- Discrete random variables. Basic discrete distributions (binomial, hypergeometric, Poisson, negative binomial) (Weeks 4, 5, 6).
- Continuous random variables. Probability density function. Basic continuous distributions (normal, exponential, gamma). The Central Limit Theorem (Weeks 7, 8, 9).
- Random vectors. Joint, marginal, and conditional distributions. The correlation coefficient (Weeks 10, 11).
- Data and what they tell us about the model. Point and interval estimation. Margin of errors. (Weeks 12, 13).
- Testing statistical hypotheses. The P-value. Review of the material (Weeks 14, 15).