

# Stat 400 Syllabus, Sections 0111, 0112, 0121, 0122, 0131, 0132.

Fall 2009

**Time and place:** TuTh.....12:30pm-1:45pm (ARM 0131)

**Time and place of discussion sessions:**

0111 - M.....8:00am-9:15am (MTH 0105)  
0112 - M.....8:00am-9:15am (MTH 1411)  
0121 - M.....9:30am-10:45am (MTH 0105)  
0122 - M.....9:30am-10:15am (MTH 0411)  
0131 - M.....11:00pm-12:15pm (MTH 0104)  
0132 - M.....11:00pm-12:15pm (ARM 0101)

**Textbook:** Jay L. Devore, PROBABILITY AND STATISTICS FOR ENGINEERING AND THE SCIENCES, Seventh Edition, Duxbury.

**Instructor:** Prof. S. Cerrai

**Office:** MTH 2304.

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**Office hours:** Tuesday 10:45am-12:15pm and Thursday 2:00pm-3:30pm.

**Teaching assistants:** Ziliang Li, e-mail address: [mooud@math.umd.edu](mailto:mooud@math.umd.edu), office: MTH 4414, office hours: Wednesday 4:00pm - 5:00 pm and Thursday 2:30 pm - 3:30 pm. Guoyuan Liu, e-mail address: [yuxuzi@umd.edu](mailto:yuxuzi@umd.edu), office: MTH 1305, office hours: Tuesday 4:00 pm -5:00 pm and Thursday 11:30 pm - 12:30 pm.

**Grading policy:** Homework will be assigned, collected by the TA's and graded. There will be approximately ten homeworks assigned during the semester of which the best eight will count towards the grade. Two midterm exams and up to four quizzes will be given.

The combination of homeworks and quizzes will contribute 300 points to the final grade, the midterms will contribute 400 points and the final exam will contribute 300 points, for a total of 1000 points.

**Attendance policy:** The students are responsible for all the material covered in the class. If a student misses an exam or quiz due to circumstances beyond the students' control, the student must supply appropriate documentation in which case special arrangements will be made.

**Other:** You should be familiar with the University's policies on Academic Integrity, including the Honor Pledge. In particular, you should work on the problems on your own.

If your religion dictates that you cannot take an exam or hand in assigned work on a particular date, then contact me at the beginning of the semester to discuss alternatives. You are responsible for making these arrangements at the beginning of the semester.

If you have some disability related to testing under the usual timed, in-class conditions, you may contact the office of Disabled Students Services (DSS). If they assess you as meriting private conditions and/or extra time, then you may arrange to take your tests at DSS, with extra time as they indicate. You must arrange this well in advance of a test.

### **Topics to be covered:**

1. The  $\sigma$ -algebra of events, probability, conditional probability, Bayes theorem, independence.
2. Discrete random variables, basic discrete distributions (binomial, hypergeometric, Poisson, negative binomial).
3. Continuous random variables, probability density function, basic continuous distributions (normal, exponential, Gamma), the central limit theorem.
4. Random vectors, joint, marginal and conditional distributions, the correlation coefficient.
5. Data and what they tell us about a model, point and interval estimation, margin of errors.
6. Testing statistical hypothesis, the P-value, review of the material.

### **Dates:**

1. First Midterm: October 6,

2. Second Midterm: November 10,
3. Final: December 18, 1:30 pm - 3:30 pm, Armory 0131.

## Homework assignment

1. Homework 1: Chapter 2, Exercises 2, 8, 18, 24, 26, 30, 38, 42.
2. Homework 2: Chapter 2, Exercises 58, 60, 66, 74, 78, 84, 106, 112.
3. Homework 3: Chapter 3, Exercises 4, 8, 10, 12, 14, 18, 24, 28.
4. Homework 4: Chapter 3, Exercises 32, 38, 52, 66, 70, 78, 84, Chapter 4, Exercise 4.
5. Homework 5: Chapter 4, Exercises 8, 10, 12, 20, 24, 30, 32, 38.
6. Homework 6: Chapter 4, Exercises 43, 48, 51, 57, 59, 60, 68, 71.
7. Homework 7 (due to November 16): Chapter 4, Exercises 77, 102, 110, 114, Chapter 5, Exercises 4, 6, 12, 14.
8. Homework 8: Chapter 5, Exercises 16, 20, 22, 26, 30, 35, 36.