

MA 222: Probability and Statistics (summer)

MTWR 1:30 - 3:00 Peirce 116

<http://www.math.stevens.edu/~ifloresc/Teaching/2009-2010/index222.html>

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Office hours: Monday 11:00 – 12:00; Wednesday 11:00-12:00; and by appointment.

Course textbook:

Jay L. Devore, “*Probability and Statistics for Engineering and the Sciences*”, seventh edition, Duxbury, 2007, ISBN: 0-495-38217-5; ISBN-13: 978-0-495-38223-2.

(*Recommended textbook*): Saeed Ghahramani “*Fundamentals of Probability with Stochastic Processes*”, third edition, Prentice Hall, 2004, ISBN 0131453408, ISBN-13: 978-0131453401

Prerequisites: Ma115-Ma116 or equivalent (one year of college calculus)

Outline of the course and outcomes: We will start by learning basic notions of *Probabilities* building the material as we go along, the first weeks are very important for later understanding the material. After this, we will talk about *Distributions*, which are the basic “functions” of Statistics. This will be the core part of the course. We will talk about joint distributions and limit theorems including the *Central Limit Theorem*, which is the basis of the final part of the class: basic notions of Statistics. We will use primarily the results of this theorem to introduce main concepts in statistics (confidence intervals and tests). A student graduating this class is expected to understand probability **reasoning**. In addition he/she would have a good understanding of working with probability and have rudimentary notions of statistics. For an in-depth understanding of statistics the MA 331 continues this class.

Software: Despite what is written in the course description we will use very little software in this class, only toward the end in the statistics part. The choice of software will be R. Once again, if interested in software and statistics one should continue with MA331.

Evaluating the work: You are expected to **attend every class**. Questions in class are welcomed and encouraged. Sometimes you will be asked to participate in class (solving problems at the blackboard and answering questions).

Homework is to be handed in every Wednesday and due next Wednesday. Parts of it will be graded. You are encouraged to discuss homework assignments with other students (collaborative learning is a good idea and homework is mainly for practice), but you must write up your work independently. The text has answers to most exercises but what I expect from you are *complete solutions* (answers containing only a number without justification will receive no points). Late homework will not be accepted. Your 10 best homework scores, out of about 12 assignments will be used to compute your grade. No make-up homework will be allowed.

Quizzes (about 10 minutes) will be given during the recitation. No quiz can be made up after its scheduled date. Two quiz scores will be dropped and the rest will be used to compute your grade. Please bring a calculator to all the quizzes and tests.

Tests: Closed-book. You may use one 8.5"x11" sheet of handwritten (not copied) notes, front and back. Practice problems and copies of some previous tests will be made available. The exams will be administered during the regular scheduled lecture time. If you have an exceptionally good reason the tests can be rescheduled. Please fill the form available on the website and forward it to me.

Final examination: Same as regular tests, except four-hours long. The final is going to be comprehensive. You may have three pages of handwritten (not copied) notes, front and back.

All the sections will take the same *midterm and final exams*.

Grading:

Homework: 15%

Quizzes: 15%

Test 1: 20% TBA

Test 2: 20% TBA

Final Exam: 30% As scheduled during finals week.

We plan on straight cutoffs but the final grade assignment may be curved depending on the student's performance during the tests. However, 90% (80%, 70%) would guarantee an A (B and C respectively).