Math 443, Stat 443—Applied Probability
Spring 1997
Tu, Th 10:35–11:50 a.m.; White 322
Please note that this document has three pages.

Instructor

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Outline of course

The purpose of this course is to provide an introduction to probability theory and some of its applications. The course provides a sound background in probability for students who plan to undertake advanced studies in probability and statistics. For the students who need to apply probability in engineering and the sciences, the course provides a working knowledge of most of the necessary introductory concepts.

We will use the textbook *Introduction to Probability and Its Applications* by Richard L. Schaeffer (Duxbury Press, 1994).

The specific topics to be covered are as follows.

(1) Motivating reasons for studying probability theory.

(2) Probability.

(3) Discrete probability distributions.

(4) Continuous probability distributions.

(5) Multivariate probability distributions.

(6) Functions of random variables.

(7) Some approximations to probability distributions: Limit theorems.

Grades

The course grades will be based on homework assignments, two midterm examinations, and a comprehensive final examination weighted as follows.

- Homework assignments—25%
- Two midterm examinations—20% each
- Comprehensive final examination—35%

Please note the following regarding the two midterm examinations and the comprehensive final examination.

- They are closed-book and closed-notes etc.
- *Blue books are required.*
- Midterm examination 1—Tuesday, February 25, 1997; in class; on material covered during the period January 14, 1997 through February 13, 1997.
- Midterm examination 2—Tuesday, April 15, 1997; in class; on material covered during the period February 18, 1997 through April 3, 1997.
- Comprehensive final examination—Tuesday, May 6, 1997; 10:10 a.m.–12:10 p.m.; White 322.

Additional comments

- Homework will be assigned in class every Thursday (except on Thursdays preceding the midterm examinations and the last day of classes) and will be due *at the beginning of class on the following Thursday.* No late homework will be accepted. Homework turned in on a given Thursday will be graded and returned in class on the following Thursday.
  Homework will be mostly from the text book. I may also assign problems that are not in the text book.
  Homework is graded by the teaching assistant. Therefore, if you have any questions on the grading of homework you should discuss your concerns with him first. If your concerns are still not addressed, then you may see me and I shall try to resolve your concerns.
  The text book provides answers to almost all the problems in it. Please note that some of these answers are brief. Therefore, you may not get the total number of points if

you just copy the answers in the text book.
Since most of the homework problems are from the text book, and the text book provides answers to almost all the problems in it, it should be relatively easy to get the 25% of the grade assigned for homework. You should make it a point to do so.

- There is a Math 443 home page on the internet. You may access that by clicking on Math 443 from my home page whose url is indicated above. All handouts and homework assignments will be available on the Math 443 home page. Therefore, not being in class when I assign homework should not be an excuse for not turning in home work on time.

- Following are some additional facts that you should keep in mind.

  Make sure to read the sections of the text book pertinent to the material I cover in class, and to complete the tasks that I assign in class, *prior to attending the next class.* If you have any difficulties whatsoever you should either see me or the teaching assistant immediately. (Note that one of us will have office hours on every day of the week.) Do not let your difficulties accumulate.

  Problem solving is important in any mathematics course. This is even more important in a course on probability as problems in probability can sometime appear to be deceptively simple. Make sure to start working on the homework as soon as possible. Again, if you have any difficulties whatsoever, you should see me or the teaching assistant immediately. Do not leave the solution of homework to the last minute.

  The problems in midterm examinations and the final examinations would be related to homework and problems I solve in class. However, there will be some problems that are nontrivial extensions of such problems. Therefore, it may not be possible to do well in these examinations without reading the textbook, completing the tasks assigned in class, doing the homework, and getting your difficulties resolved by either me or the teaching assistant *all on a regular basis.* In particular, trying to prepare for these examinations just prior to them *alone* may not be adequate. Therefore, I will not devote class time for reviewing material for examinations. Of course, I and the teaching assistant will always be available for responding to your questions whether they are related to examinations or any other aspect of the course.