Instructor: Joshua M. Tebbs, Department of Statistics
Course: Probability
Class Time: 1.25-2.15 MWF, in 210A LeConte
Prerequisite: MATH 241 with a grade of C or higher
Office: 209G LeConte (tel: 777.5163)
Office Hours: 11.00-12.00 MWF, or by appointment
email: `tebbs@stat.sc.edu`
url: `http://www.stat.sc.edu/~tebbs/index.htm`

Required Course Material:

- Wackerly, D., Mendenhall III, W., and Scheaffer, R. *Mathematical Statistics with Applications*, 7th edition. Copyright 2008, Duxbury.

Objectives: The purpose of this course is to give you an introduction to probability theory and probability distributions. The material presented will not only serve as a basis for the subsequent courses, STAT 512/513, but is also extremely useful and fascinating in its own right. STAT/MATH 511 has a prerequisite of a standard multivariate calculus course, and a strong mastery of differentiation, integration, series/sequences, and related facts, is necessary.

Topics/Learning Outcomes: From Wackerly, Mendenhall, and Scheaffer (WMS), we will cover Chapters 2-5 in detail. In particular, we will explore the axiomatic approach to probability, counting techniques, Bayes Theorem, random variables, probability distributions (discrete and continuous), mathematical expectation, moment generating functions, mixed distributions, joint and conditional distributions, measures of association (covariance and correlation), and conditional expectations. We will focus on both theory and application in this course. You will be expected to derive theoretical results using algebra and calculus and apply these results to problems from a variety of applications.

Note: This course is extremely important for those of you considering careers in actuarial science. Exam P (Probability) essentially consists of Chapters 2-7 from WMS.

Homework Assignments: There will be 12 homework assignments during the semester. Homework should be written up neatly and stapled. The homework assignments are an important component of this course. Each will count towards your final grade. Late homework will receive at most 50 percent credit.

Quizzes/Take-Home Problems: I reserve the right to periodically give in-class quizzes or (perhaps more challenging) take-home problems. Take-home problems are due the next class meeting after they are assigned. Quiz and take-home points will count towards your homework grade.

Exam Schedule: We will have in-class midterm examinations on Friday, September 25 and Friday, November 6. A cumulative final examination will be on Saturday, December

12, at 2.00pm. Please note that I do not give make up examinations unless your absence is due to a university commitment and you have informed me about it at least one week in advance.

Grade Breakdown: Your course grade will be determined by participation/attendance (10 percent), homework (20 percent), midterm examinations (15 percent each), and the final examination (40 percent). Final course grades will likely be assigned according to a 90-80-70-60 protocol (but I reserve the right to adjust this scale if appropriate).

Some comments about STAT/MATH 511:

- Feel free to ask questions during class; your questions are an important part of this course. Introductory courses like STAT/MATH 511 can be challenging, and very few students are able to master the material without keeping up on a regular basis. See me if you have a question about finding tutors.
- I have found that in a course like STAT/MATH 511, many students are overwhelmed by the amount of algebra and calculus that is performed on a daily basis (e.g., in lectures, homework problems, examinations, etc.). It is strongly recommended that you get your calculus text out, dust it off, and review concepts such as real functions, limits, graphical methods, differentiation, integration, sequences and series, exponential and logarithmic functions, multivariate calculus, etc. **This is a course that introduces you to probability and statistics from a mathematical point of view.** If your algebra and calculus skills are rusty, then you will have problems learning the material, and you will likely do poorly in this class.
- Working together on homework problems is permitted and encouraged, but each student should write up his/her solutions independently of others (this will help greatly). Naturally, cheating on exams is an extremely serious offense and will be dealt with in the harshest possible way.
- I would like to talk to anybody with a disability that may require special attention with examinations or other aspects of the course.

My expectations for you:

1. Attend every class and be on time. Turn cell phones off.
2. Read appropriate sections of the text/notes before class.
3. Spend a lot of time on homework problems and on working other problems from the text.
4. Ask questions if you do not understand something or wish to know more.
5. Remember what you have learned in calculus (or go back and re-learn it).
6. Make it your goal to understand everything we do.