

Instructor: Joshua M. Tebbs, Department of Statistics  
Course: Mathematical Statistics  
Class Time/Place: 11.00-12.15 TTh in 210A LeConte  
Prerequisite: MATH/STAT 511, with a grade of C or higher  
Office: 209G LeConte (tel: 777.5163)  
Office Hours: 9.00-10.00 MTWTh (or by appointment)  
email: [tebbs@stat.sc.edu](mailto:tebbs@stat.sc.edu)  
url: <http://www.stat.sc.edu/~tebbs/index.htm>

**Required Course Material:**

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

**Objectives/Learning Outcomes:** The purpose of this course is to introduce you to topics in mathematical statistics. From Wackerly, Mendenhall, and Scheaffer (WMS), we will cover Chapters 6-9. We will explore distributions of functions of random variables (distribution function technique, transformations, mgf technique), order statistics,  $t$  and  $F$  distributions, the Central Limit Theorem, interval estimation, efficiency, sufficient statistics, MVUE estimation, method of moments, maximum likelihood estimation, and large-sample theory. Similar to STAT/MATH 511, this course is a mix of application and mathematical theory. STAT 512 serves as a basis for the material to be covered in STAT 513.

**Note:** For students in actuarial science, topics from Chapters 6-7 are covered on Exam P, along with Chapters 2-5, which were covered in STAT/MATH 511.

**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 (often as extra credit, but not necessarily).

**Exam Schedule:** We will have one midterm examination on Thursday, March 3. A cumulative final examination will be on Tuesday, May 3, at 9.00am. 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 (25 percent), the midterm examination (25 percent), and the final examination (40 percent). Final course grades will 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 512:**

- Doing well in STAT 512 requires that you have mastered the material from STAT 511. This should not be surprising, so plan accordingly! A copy of my STAT 511 notes is available online. If necessary, please take time at the beginning of the semester to thoroughly review/relearn the material from STAT 511. Those who haven't mastered STAT 511 usually find STAT 512 to be overwhelming.
- 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 accordingly.
- I would like to talk to anybody with a disability that may require special attention with examinations or other aspects of the course. Please talk with me during the first or second week of class.

**My expectations for you:**

1. Attend every class and be on time.
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 and STAT 511 (or go back and re-learn it).
6. Make it your goal to understand everything we do.