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# STAT 512 SYLLABUS

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Course: Mathematical Statistics (Summer 2016)

Instructor: Haigang Liu | haigang@email.sc.edu

Class Time & Place: Monday to Friday, 8:30 – 9: 45 am, LeConte 201A

Office Hours: After Class or By appointment

## REQUIRED COURSE MATERIAL

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

## PREREQUISITE

MATH/STAT 511, with a grade of C or higher. Doing well in STAT 512 requires that you have mastered the material from STAT 511. If necessary, please take time at the beginning of the semester to thoroughly review/relearn the material from STAT 511.

This prerequisite is not mandatory. However, those who haven't mastered STAT 511 might find STAT 512 to be overwhelming.

## 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 6 homework assignments during the semester (one homework assignment per week). 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 70 percent credit.

### EXAM SCHEDULE

We will have one midterm examination on Monday, July 18th. A cumulative final examination will be on Saturday, August 6th, at 8:30 am. 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 (30 percent), the midterm examination (30 percent), and the final examination (30 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

- 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).
- 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.