Instructor: Joshua M. Tebbs, Department of Statistics
Course: Theory of Statistical Inference
Class Time: 12.30-1.45 TTh, in 210A LeConte
Prerequisite: STAT 512, with a grade of C or higher
Office: 209G LeConte (tel: 777.5163)
Office Hours: 1.00-2.00 MW and 8.00-9.00 TTh, or by appointment
email: `tebbs@stat.sc.edu`
url: `http://www.stat.sc.edu/~tebbs/index.htm`

Required Course Material:

- Wackerly, Dennis D., William Mendenhall III, and Richard L. Scheaffer. *Mathematical Statistics with Applications*, 6th edition. Copyright 2002, Duxbury.

Objectives/Outline: The purpose of this course is to continue, and finish, our exploration of statistical inference. From Wackerly, Mendenhall, and Scheaffer (WMS), we will cover Chapters 10-13 and a supplementary chapter on Bayesian methodology. In particular, we will discuss hypothesis testing (e.g., Type I/II Errors, power, large-sample tests, UMP tests, likelihood ratio tests, etc.), Bayesian inference (i.e., point estimation, credible regions, hypothesis tests), inference from simple and multiple linear regression models (e.g., least squares estimation, confidence and prediction intervals, linear model representation using matrices, geometric considerations, etc.), and ANOVA models (e.g., overall F tests, estimation, simultaneous inference, etc.). 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 multitude of applications.

Homework Assignments: I will assign homework problems from WMS on a regular basis. These will not be graded. However, I strongly encourage you to try all problems and see me if you are having problems solving them.

Quizzes: We will have four "take-home" quizzes during the semester. These quizzes will be handed out in class on a Thursday (Sept. 13, Oct. 4, Nov. 1, and Nov. 29) and will be due the following Tuesday. Quizzes will be similar to the homework problems that I assign. I will discuss the quiz "ground-rules" when I hand out the first one.

Exam Schedule: We will have one cumulative final examination on Thursday, December 13 at 2.00pm (in this room). Please note that I do not give make-up examinations unless your absence is due to a university function and you have discussed it with me at least one week in advance.

Grade Breakdown: Your course grade will be determined by your performance on take-home quizzes (50 percent; 12.5 percent each), the final examination (40 percent), and attendance/classroom participation (10 percent). Final course grades will be assigned according to a 90-80-70-60 protocol.

Some comments about STAT 513:

- Feel free to ask questions during class; your questions are an important part of this course. Very few students are able to master this material without keeping up on a regular basis. See me if you have a question about finding tutors.
- 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 and take-home quizzes 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 see me during the first 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. Attempt all homework.
4. Ask questions if you do not understand something or wish to know more.
5. Remember everything you have learned in STAT 511-512.
6. Make it your goal to understand everything we do.