Instructor: Joshua M. Tebbs
Course: Mathematical Statistics II
Class Time/Place: 10.50-11.40 MWF in 210A LeConte
Office: 209G LeConte (tel: 777.5163)
Office Hours: 9.30-10.30 MWF (or by appointment)
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Required Textbook:


Course overview: This is the second semester of a two-semester sequence in mathematical statistics, taught at the graduate level. A mastery of the material from STAT 712 is assumed. After tying up loose ends in Chapter 5, we will cover most of the material in Chapters 6-9 from Casella and Berger and parts of Chapter 10. In particular, we will discuss

- Convergence (Section 5.5; 2 weeks). Modes of convergence, CLT, Slutsky’s Theorem, Delta Method, multivariate extensions.
- Data reduction (Chapter 6; 2.5 weeks). Sufficiency, ancillarity, minimality, completeness.
- Point estimation (Chapter 7; 3 weeks). Methods of finding estimators (MOM, MLE, Bayes), methods of evaluating estimators, best unbiased estimators.
- Hypothesis testing (Chapter 8; 3 weeks). Likelihood ratio tests, Neyman-Pearson Lemma, most powerful and UMP tests, probability values.
- Interval estimation (Chapter 9; 2 weeks). Methods of finding intervals (test inversion, pivoting, etc.), methods of evaluating intervals.
- Asymptotic evaluations (Chapter 10; 1.5 weeks). Consistency, large-sample properties of MLEs, likelihood-based inference (Wald, score, and LRT).

Homework: There will be approximately 10-12 homework assignments during the semester. The homework assignments are an important component of this course. Each will count towards your final grade. Late homework will receive at most 25 percent credit. In addition to the assigned homework, I encourage you to work out solutions to other problems in the text and other extra problems I assign in class. This is really the best way to learn this material and much can be learned by doing (or at least reading) extra problems.

Exam Schedule: We will have two midterms, one after Chapters 5-6 and one after Chapters 7-8. We will have an in-class cumulative final examination on Monday, May 4 at 9:00am. My final exam is closed-book and closed-notes. Please note that I do not give make-up examinations unless your absence is due to a university function, you have given me appropriate documentation, 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 homework (30 percent), the two midterms (15 percent each), and the final exam (40 percent). Final course grades will be assigned according to a 90-80-70-60 schedule.