Syllabus

USC, Department of Statistics, Spring 2019

Course STAT 713: Mathematical Statistics II

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**. This is a theoretical course, with **an emphasis on writing proofs and derivations**.
Class Time:	11:40 am – 12:55 pm Tuesday and Thursday (from Tuesday, January 15 to Thursday, April 25)
Class Place:	LeConte College 201A
Instructor:	Dewei Wang
Office:	Leconte College 219B
Email:	deweiwang@stat.sc.edu
Assistant:	Tuan Do (tqdo@email.sc.edu) Office: LeConte College 209D Office hours: Tuesday and Thursday: 1:00 pm – 2:00 pm Wednesday: 10:00 am – 11:59 am
Course Website:	http://people.stat.sc.edu/wang528/Stat%20713/STAT713.html
Textbook:	Casella, G. and Berger, R. (2002). *Statistical Inference*, Second Edition.

Topics Covered: We will finish Chapter 5 then cover most of the material in Chapters 6-10 from Casella and Berger. In particular, we will discuss

- Order statistics (Section 5.4) and Different types of convergence (Section 5.5)

- Data reduction (Chapter 6). Sufficiency, ancillarity, minimality, completeness.

- Point estimation (Chapter 7). Methods of finding estimators (MOM, MLE, Bayes), methods of evaluating estimators, best unbiased estimators.

- Hypothesis testing (Chapter 8). Likelihood ratio tests, Neyman-Pearson Lemma, most powerful and UMP tests.

- Interval estimation (Chapter 9). Methods of finding intervals (test inversion, pivoting, etc.), methods of evaluating intervals.

- Asymptotic evaluations (Chapter 10). Consistency, large-sample properties of MLEs, likelihood-based inference.

Attendance:

I expect you to attend every class. Very few students are able to master this material without keeping up on a regular basis. If you are absent when an assignment is due, you must have submitted the assignment prior to the due date to receive full consideration. In addition, **please do not be late for the class**.

Homework:

I will give numerous homework assignments throughout the semester. In addition to the homework, I encourage you to work out solutions to other problems in the text and other extra problems I assign. This is really the best way to learn the material and much can be learned by doing (or at least reading) extra problems.

Exam:

I will give only one cumulative final exam on Tuesday, May 7th at 12:30pm. Please note that I do not give make–up exams.

Grade Breakdown:

Your course grade will be determined by your performance on the homework (40 percent) and the final exam (60 percent). As aforementioned, this course has an emphasis on writing proofs and derivations. Knowing how to approach a problem cannot earn any credits for you. My grading is solely based on your writing. Please present your solution in a rigorous way for both homework and exam problems. Final course grades will be assigned according to a 90-85-80-75-70-65-60 scale.

Academic Integrity:

Students are expected to follow the University of South Carolina Honor Code and should expect that every instance of a suspected violation will be reported. Students found responsible for violations of the Code will be subject to academic penalties under the Code in addition to whatever disciplinary sanctions are applied. Cheating on an exam or copying someone else's work, will result in a 0 for the work, possibly a grade of F in the course, and, in accordance with University policy, be referred to the University Committee for Academic Responsibility and may result in expulsion from the University.

Accommodating Disabilities:

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 ASAP.

Note that reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, contact the Office of Student Disability Services: 777-6142, TDD 777-6744, email sasds@mailbox.sc.edu, or stop by LeConte College Room 112A. All accommodations must be approved through the Office of Student Disability Services.