STAT 512, Mathematical Statistics-- Summer 2022

Instructor:
David Hitchcock, associate professor of statistics
4010G Carolina Coliseum
Phone: 777-5346
Email: hitchcock@stat.sc.edu
Course Web Page: http://people.stat.sc.edu/hitchcock/stat512.html
(Also accessible via course page in Blackboard; click on "Course Web Page" link on left of page)

Meeting Times: 12:30 pm - 2:10 pm Mon-Tues-Wed-Thurs Carolina Coliseum 3003 (COL 3003)

Office Hours:
Mon-Tues-Wed-Thurs 2:30-3:30 p.m., or please feel free to make an appointment to see me at other times.

Textbook: *Mathematical Statistics with Applications, 7th edition.* (2008), by Wackerly, D., Mendenhall, W., and Scheaffer, R.

Prerequisite/Corequisite: STAT 511(=MATH 511) with a grade of C or higher.

Course Outline: Chapters 6 – 9 of the Wackerly, Mendenhall, and Scheaffer textbook. Topics covered include: distributions of functions of random variables (distribution function technique, transformations, moment-generating function 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.

Learning Outcomes: The successful students will be able to use the theory of mathematical statistics to: (1) derive and understand distributions of functions of random variables; (2) understand important results about sampling distributions; (3) derive and understand point and interval estimators; and (4) judge the quality of various estimators.

Exams:
There will be two in-class exams (June 30 and July 14) and a final exam on July 29. Each exam will be given in the classroom during the regularly scheduled class time. If you are not able to come to campus for the exams, you must contact Shannon Carson at distributed learning (scarson@mailbox.sc.edu or 803-777-2189) to set up a proctor. See
https://www.sc.edu/study/academic_overview/online_education/courses/exams_and_testing/index.php
for information about approved remote testing with proctoring.

Homework: Daily homework exercises will be assigned in class or on the course web page. These homework exercises will be collected and graded. You may work with other students in this class on these problems, but you should write your answers independently. Test problem(s) will often be similar in nature to assigned homework problems. Therefore you are personally responsible for knowing how to do each homework problem (even if you worked in a group on the homework). So it is important that you understand how to solve the homework problems! Please write your homework answers NEATLY on the pages provided (you can use other paper for preliminary scratch work, but neatly copy your final solution).

Quizzes: Short quizzes will be posted occasionally in Blackboard. You may attempt these quizzes multiple times and your highest score will be kept, but these attempts must come BEFORE the due date. Your lowest two quiz grades will not count towards your quiz average. You will not be allowed to make up any quizzes; if you miss a quiz, it will be one of the quiz grades that are dropped when the quiz average is calculated.

Graduate Students: Any students enrolling in the course for graduate credit must do a short project that will count for 5% of their course grade (with other grade components being rescaled proportionally). Any graduate students should please see me for details.

Grading: The course grade will be based on homework average (15%), quiz average (10%), the two midterm exams (25% each), and a final exam (25%). The overall course average will result in the following grades: 90-100 = A, 87-89 = B+, 80-86 = B, 77-79 = C+, 70-76 = C, 67-69 = D+, 60-66 = D, 59 and below = F.

Course Notes: Some pdf files with the (incomplete) notes I will be following in class are available on the course web page. It is recommended (though not required) that you print these notes out ahead of time and bring them to class where you can fill in the blank parts.

During Class: No cell phones may be on during class. Laptop computers must be put away during class time. Tablets (e.g., i-pads) may be used *only for note-taking*, only if flat on the desk like a traditional notebook. Students may not use tablets to look at web pages, play games, etc.

Honor Code: Every student has a role in maintaining the academic reputation of the university. It is imperative that you refrain from engaging in plagiarism, cheating, falsifying your work and/or assisting other students in violating the Honor Code.

Student Disabilities: Any student with a documented disability should contact the Student Disability Resource Center at 777-6142 to make arrangements for appropriate accommodations. Please let me know any accommodations you will need.