STAT 516, Statistical Methods II – Summer II 2009

Instructor:
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Course Web Page: http://www.stat.sc.edu/~hitchcock/stat516.html

Classes:
Meeting Times:
Mon-Tue-Wed-Thu 10:30 a.m.-12:45 p.m., LeConte College, Room 210A

Office Hours:
Mon - Tues - Wed - Thu 9:40-10:15 a.m. and 1:00-1:30 p.m.
Please feel free to make appointments to see me at other times.

Textbook:
Statistical Methods, Second Edition, by R.J. Freund and W. J. Wilson, Academic Press, 2002.

Purpose: To complete a basic two course sequence (in conjunction with STAT 515 or 509) in statistical techniques available to the general practitioner for analyzing experimental data. To introduce students in many different disciplines to multiple regression and analysis of variance for basic experimental designs. To provide students with the knowledge to implement and interpret these standard linear models.

Prerequisite: Grade of C or higher in STAT 515 or STAT 509 or equivalent.

Course Outline: Chapters 6 – 11 of the Freund & Wilson textbook. Topics covered include: Simple and multiple linear regression, analysis of variance for basic designs, multiple comparisons, random effects, and analysis of covariance. Statistical packages such as R and SAS.

Exams: There will be two in-class midterm exams (July 16, July 28) and a final exam on August 7. Exams may not normally be made up, except in extreme circumstances, for which written documentation of excuse (doctor's note, funeral notice, etc.) is required. If you suspect you may miss an exam day, it is important to contact me well in advance of the test date.

Homework: Daily homework exercises from the textbook are assigned on the course web page. These homework exercises will not be collected, but it is important that you do them each day, because we will have a quiz almost every class in this class. The quiz problem(s) will be very similar or identical to one or more of the assigned homework problems. A schedule of homework problems and possible quiz topics is given on the course web page.

Quizzes: We will have a quiz during each class, beginning Thursday, July 9 (except dates when exams are scheduled). This makes a total of 14 quizzes. Your best 11 quiz grades will make up 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.

The quiz problem(s) will be very similar or identical to one or more of the assigned homework problems. Often will be allowed to use your homework answers for the quizzes; other times you will not use any notes for the quizzes. Quizzes will usually be given near the end of class each day, but may be given at the beginning of class occasionally. A schedule of homework problems and possible quiz topics is given on the course web page.

Graduate Students: Any students enrolling in the course for graduate credit must do a short data-analysis project that will count for one-quarter of their quiz grade. Any graduate students should please see me for details.

Grading:
The course grade will be based on quiz average (20%), the two midterm exams (25% each), and a final exam (30%). 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.
For graduate students only: 91-100 = A, 88-90 = B+, 81-87 = B, 78-80 = C+, 71-77 = C, 68-70 = D+, 61-67 = D, 60 and below = F.

Computing: Some problems in this course involve significant computations, and for these, we will learn to use the free software package R. This is available in the labs and also as a free download for your home computer (see course web page for details). It is not assumed that you have much/any previous experience with R.

You will have an account on the MS domain. Currently the computers in LC 124 and LC 303A have R.

You also may use the commercial software package SAS to do homework problems, but the class examples will be done in R. Currently the computers in LC 124, LC 303A (some) and PSC 102 (some) have SAS. Example code in SAS and R is given on the course web page.

Course Schedule: Mondays through Thursdays, July 7 through August 5:

July 9 – July 15: Daily quizzes
July 16: Midterm exam 1
July 20 – July 27: Daily quizzes
July 28: Midterm exam 2
July 29 – August 5: Daily quizzes
Friday, August 7: (10:30 a.m.-12:45 p.m.) Final exam