
STAT 509 SYLLABUS

Course: Statistics for Engineers (Fall 2017)

Instructor: Haigang Liu | haigang@email.sc.edu

Class Time & Place: Monday, Wednesday, Friday, 8:30 – 9: 20 am, Calcott Building 201

Office and office hours: LeConte 127A; after class or by appointment

OPTIONAL TEXTBOOK

Montgomery, D. and Runger, G. (2013). Applied Statistics and Probability for Engineers, 6th Edition. John Wiley and Sons, Inc.

COURSE OVERVIEW

Course overview: This course is an introduction to probability and statistics at the undergraduate level. Applications in engineering will be heavily emphasized. We will follow my course notes and will discuss the following topics:

- *Probability and distributions* (Chapters 2-5): Probability laws; discrete and continuous random variables and their distributions; means/variances; percentiles; reliability.
- *Estimation and statistical inference* (Chapters 6-9): Sampling distributions; one/two-sample statistical inference involving means, variances, and proportions; one-way analysis of variance.
- *Regression* (Chapters 10-11): Simple/multiple linear regression; least squares; estimation and prediction; confidence intervals and hypothesis tests; residual diagnostics.
- *Factorial experiments* (Chapter 12): 2^k factorial treatment structures; replicated and un-replicated analyses.

HOMEWORK

I plan to give 10 homework assignments during the semester—one assignment per chapter (Chapters 2-11 only). Working together on homework assignments is encouraged. Homework will not be collected or graded, but will be reflected in the exams.

EXAM

We will have four in-class exams. The dates are: September 18th, October 16th, November 13th and December 1st. Exams are all closed-book and closed-notes. Please note that I do not give make-up exams.

GRADE BREAKDOWN

Your course grade will be determined by your performance on exams ($4 \times 25\% = 100\%$), Final course grade will be assigned according to the following protocol, A = [90, 100); B+ = [87, 90); B = [80, 87); C+ = [77, 80); C = [70, 77); D+ = [67, 70); D = [60, 67); F = [0, 60).

COMPUTING

We will use R. It is OK if you do not know R (or have never heard of it), because you will learn by example. The R package is available for free at www.r-project.org. The "An Introduction to R" manual available at this site is an excellent resource.

SOME COMMENTS

- Cheating on exams is an extremely serious offense and will be dealt with accordingly.
- Attending lectures, taking notes and spending a lot of time on homework assignments is the best path to a good grade. Ask questions if you do not understand something or wish to know more.
- 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 during the first or second week of class.