

ISE 225 ENGINEERING STATISTICS - Spring 2016

MW, 10:00 – 11:50 p.m., KAP 163
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Textbook: *Intro. to Probability and Statistics for Engineers and Scientists, Ross S., 5th ed., Acad. Press, 2014*
Probability and Statistics with R, 2nd ed., Ugarte, Militino, and, Arnholt, CRC Press, 2015

Pre-requisites: ISE 220

Course Objectives: This course is an introduction to the Statistical Analysis of problems involving data from multiple random variables, where one –the response- is related to a set of variables – the predictors – so that useful statistical models can be designed to predict the relation between the predictors and the response. Such models are commonly referred to as linear models. When the set of predictors includes continuous and/or categorical random variables they are known as analysis of variance models. When the set of predictors includes only continuous random variables they are known as linear regression models. This course is an introduction to the design and analysis of these models. It starts with a brief review of statistical inference, as it is the building block for the analysis of the models covered in this course.

Course Outline

Week	Topic	Book	Exams
1	Population and Samples. Descriptive statistics	Ch. 1, Sec. 2.2-2.3	
1 – 2	Sampling distributions, point estimation	Sec. 5.7-5.8, Ch. 6	
3	Confidence Intervals	Ch. 7	
4 – 5	Hypothesis Testing	Ch. 8	
6	Midterm 1		Feb. 17
7	Simple linear regression – estimation	Sec. 9.1-9.6	
8	Inference, prediction and diagnostics		
9	Multiple linear regression (MLR) matrix approach	Sec. 9.10	
10	Inference and prediction in MLR		
11	Diagnostics and remedial measures		
12	Midterm 2		April 4
12 – 13	Single factor ANOVA	Sec. 10.1-10.3	
14	Blocking		
15	Factorial experiments with two factors	Sec. 10.4- 10.6	
	Final Exam		May 9, 8 a.m.

Grading Policy:

Homework 20%
Midterms 25%
Final Exam 30%

Academic Integrity. The Viterbi School of Engineering adheres to the University's policies and procedures governing academic integrity as described in SCampus (www.usc.edu/dept/publications/SCAMPUS/). Students are expected to be aware of and to observe the academic integrity standards described in SCampus, and to expect those standards to be enforced in this course.

Students with Disabilities. Any Student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m. - 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776