MW, 12:30 – 2:00 p.m., VHE 217

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Textbook: *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	Introduction	Ch. 1	
2	Population and Samples. Descriptive statistics	Ch. 2	
3	Sampling distributions	Ch. 6	
4	Confidence Intervals	Ch. 8	
5	Hypothesis Testing	Ch. 9	
6	Analisis of Variance	Secs. 11.1 – 11.3	
7	Nonparametric hypothesis testing	Ch. 10	
8	**Midterm Exam**		**Feb. 28**
9	Ordinary Least Squares (OLS)	notes	
10	Linear regression - assumptions, estimation	Secs. 12.1 – 12.2	
11	Linear regression – analysis of variance	Sec. 12.9	
12	Linear regression – Inference and prediction	Sec. 12.15 – 12.16	
12	Diagnostics and remedial measures	Sec. 12.11.2	
14	Linear regression – model building	Sec. 12.11.1	
15	Linear regression – categorical variables	Sec. 12.14	
	Final Exam		**May 10, 2 p.m.**

Grading Policy:
Quizzes 24%
Homework 25%
Midterm 25%
Final Exam 26%

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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 301and is open 8:30 a.m. - 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776