ISE 225 Engineering Statistics I

Spring Semester 2019

Mon, Wed 12:00-1:50pm   KAP 148

Prerequisite: ISE 220 Probability Concepts in Engineering

Course Objective:

This course will develop skills necessary for an engineer to

- Gather data from a population which is of interest for some question or experiment
- Describe and summarize features of the data
- Infer properties of a population by hypothesis tests and confidence intervals
- Understand and conduct statistical analyses including Analysis of Variance (ANOVA) and linear regression; draw conclusions from the analyses
- Use of statistical software

Instructor:

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Office Hour: Wed 2-3pm, GER 242B

TA:

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Textbook:

(Required) Montgomery, Runger, and Hubble, *Engineering Statistics*, 5th edition

(Optional) Paradis, *R for Beginners*, freely downloadable from https://cran.r-project.org/doc/contrib/Paradis-rdebuts_en.pdf

(Optional) Ross, *Introduction to Probability and Statistics for Engineers and Scientists*, 5th edition

Homework: Biweekly

Scoring: Homework (25%), Class Project (25%), Mid-exam (25%), Final Exam (25%)

Syllabus:

Week	Topic	Text Sections
W1: Jan 7, 9 W2: Jan 14	Introduction, data collection techniques, data summary	1-1, 1-2, 2-1 to 2-5
W2: Jan 16 W3: Jan 23 W4: Jan 28, 30 W5: Feb 4, 6	Single sample analysis: Point estimation, Hypothesis testing, Confidence interval	Ch 4
W6: Feb 11, 13 W7: Feb 20 W8: Feb 25, 27	Two-sample analysis, ANOVA	Ch 5
W9: Mar 4	Mid-exam	
W9: Mar 6 W10: Recess W11: Mar 18, 20 W12: Mar 25, 27 W13: Apr 1, 3	Basic regression analysis: simple and multiple linear regression, diagnostic, reporting, other regression techniques	Ch 6
W14: Apr 8, 10 W15: Apr 15, 17 W16: Apr 22, 24	Bridging to advanced statistics: measurement, causality, introduction to statistical learning, regression-based techniques	Handout
Final exam: TBD		