STAT 265 : INTRODUCTION TO STATISTICS FOR SCIENTISTS AND ENGINEERS

Transcript title

Intro to Stats for Sci and Eng

Credits

4

Grading mode

Standard letter grades

Total contact hours

40

Lecture hours

40

Prerequisites

MTH 252Z.

Course Description

A calculus-based introduction to probability and inferential statistics with applications to science and engineering. Topics include common probability distributions, sampling distributions, estimation, hypothesis testing, control charts, regression, correlation, and experimental design. This course offers an introduction to a statistical software tool.

Course learning outcomes

1. Demonstrate a basic understanding of the tools of statistical inference.

2. Apply statistical methodology and tools to the engineering problem-solving process.
3. Understand variability in engineering processes through modeling such variability.
4. Construct and interpret confidence intervals and hypothesis tests.
5. Construct and interpret linear regression and correlation in the context of modeling.
6. Apply statistical process control to engineering scenarios.
7. Understand the principles of experimental design and recognize their application to engineering problems.

Content outline

1. Descriptive statistics overview
2. Probability
3. Discrete random variables and probability distributions
4. Continuous random variables and probability distributions
5. Central limit theorem and sampling distributions
6. Intervals and hypothesis testing on single samples
7. Intervals and hypothesis testing on two samples
8. Analysis of variance
9. Linear regression and correlation
10. Statistical process control and control charts
11. Use of statistical software

Required materials

Required textbook. Access to free statistical software required.

General education/Related instruction lists

- Science not Lab