

MATH 271C : Probability and Statistics for Engineers and Scientists

Topics include: descriptive statistics; probability and probability distributions; statistical test and confidence intervals for one and two samples; building regression models; designing and analyzing experiments; statistical process control. Includes use of a statistical software package throughout the course. A graphing calculator will be required.

Credits 4

Lab/Practicum/Clinical Hours 0

Lecture Hours 4

Prerequisite Courses

MATH 205C

Learning Outcomes

- State, interpret, and apply the definitions, theorems, and properties involving descriptive statistics, the probability of discrete and continuous random variables, statistical intervals, hypothesis tests, ANOVA, factorial experiments, as well as linear regression and correlation.
- Determine measures of location and variability as well as cumulative probability for the binomial, Poisson, normal, exponential, and gamma distributions.
- Determine expected value, covariance, and correlation for jointly distributed random variables.
- Determine measures of location and variability, statistical intervals, test hypotheses for sample data, including data from two or more populations, and perform linear regression.
- Solve probabilistic and statistical problems using a statistical software package.
- Solve problems using the graphing capabilities of a statistical software package.
- Maximize the time of flight of a paper helicopter using a designed experiment involving a screening, steepest ascent, and the response surface methodology phase.