

Probability and Statistics

Mathematics

Description: The students will study, intuitively and formally, the mathematics of uncertainty and make applications to statistical theory. Experiments and games of chance are used in application to practical and scientific problems. Topics to be addressed are probability theory, permutations and combinations, the selection process, frequency distributions and measures of central tendency, normal distributions with applications to finite samplings and linear correlation and regression. A Texas Instruments graphing calculator is required.

Unit Name/Description	Content and/or Skills
Introduction to Statistics	<ul style="list-style-type: none">● Data Analysis● Abuses of Statistics● Designing Experiments
Describing and Comparing Data	<ul style="list-style-type: none">● Frequency Tables and Data Pictures● Measures of Central Tendency● Measures of Variation● Measures of Position
Probability	<ul style="list-style-type: none">● Fundamentals● Addition Rule● Multiplication Rule● Counting
Probability Distributions	<ul style="list-style-type: none">● Random Variables● Binomial Random Variables● Poisson Random Variables

Normal Distribution	<ul style="list-style-type: none">● Standard Normal● NonStandard Normal● Finding Probabilities● Finding Scores● Central Limit Theorem
Confidence Intervals	<ul style="list-style-type: none">● Population Mean● Population Proportion
Hypothesis Testing	<ul style="list-style-type: none">● One Sample: Mean● One Sample: Proportion● Two Sample: Mean● Two Sample: Proportion
Correlation and Regression	<ul style="list-style-type: none">● Correlation● Regression