STATISTICS
21:640:211 (3 credits)

COURSE DESCRIPTION:
Principles, methods, and application of statistical methodology; includes frequency distributions, measures of central tendency and dispersion, simple probability, sampling, regression and correlation analysis, curve fitting, and tests of significance. Applications to natural and social sciences.

PREREQUISITE:
Mathematics Proficiency. There are three ways to meet the University mathematics proficiency requirement:

Successful completion, with a grade of “C” or better, of 21:640:103 (Math for Liberal Arts), or 21:640:112 (College Algebra Intensive), or 21:640:113 (College Algebra) or any more advanced course in mathematics that is offered by the Rutgers Department of Mathematics and Computer Science.

Satisfactory performance on a Proficiency Examination administered by the Rutgers Department of Mathematics and Computer Science.

Successful completion (at another institution) with a grade of “C” or better of a college level, first-term Calculus course equivalent to 21:640:135 (Calculus I) OR Successful completion (at another institution) of a course equivalent to 21:640:114 (Precalculus), or 21:640:119 (Basic Calculus) with a grade of “B” or better.

TEXTBOOK:

DEPARTMENT WEB SITE:  http://www.ncas.rutgers.edu/math

THIS COURSE COVERS THE FOLLOWING CHAPTERS AND SECTIONS:

Chapter 1:
1.1 An Overview of Statistics
1.2 Data Classification
1.3 Experimental Design
Chapter 2:
2.1 Frequency Distributions and Their Graphs
2.2 More Graphs and Displays
2.3 Measure of Central Tendency
2.4 Measure of Variation
2.5 Measure of Position

Chapter 3:
3.1 Basic Concepts of Probability
3.2 Conditional Probability and the Multiplication Rule
3.3 The Addition Rule
3.4 Counting Principal

Chapter 4:
4.1 Probability Distributions
4.2 Binomial Distributions
4.3 More Discrete Probability Distributions

Chapter 5:
5.1 Normal Distributions - The Standard Normal Distribution
5.2 Normal Distributions: Finding Probabilities
5.3 Normal Distributions: Finding Values
5.4 Sampling Distributions and the Central Limit Theorem
5.5 Normal Approximation to Binomial Distributions

Chapter 6:
6.1 Confidence Intervals for the Mean (Large Sample)
6.2 Confidence Intervals for the Mean (Small Sample)
6.3 Confidence Intervals for Population Proportions
6.4 Confidence Intervals for the Variance and Standard Deviation

Chapter 7:
7.1 Introduction to Hypothesis Testing
7.2 Hypothesis Testing for the Mean (Large Sample)
7.3 Hypothesis Testing for the Mean (Small Sample)
7.4 Hypothesis Testing for Proportions
7.5 Hypothesis Testing for Variance and Standard Deviation

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