Syllabus

MAT 122 - Introductory Statistics II

General Information

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Department Mathematics

Course Prefix MAT

Course Number 122

Course Title Introductory Statistics II

Course Information

Catalog Description A continuation of Introductory Statistics I (MAT 121) with an introduction to statistical research. Topics of statistical inference included are hypothesis testing and estimation for means, proportions, and variances; determination of sample size; uses of the Chi-square distribution; analysis of variance; and statistical research. The course will emphasize computer or calculator use (graphing calculator, Minitab, Excel, StatCrunch, etc.) to obtain results.

Credit Hours 3

Lecture Contact Hours 3

Lab Contact Hours 0

Other Contact Hours 0

Grading Scheme Letter

Prerequisites

MAT 121

Co-requisites

None

First Year Experience/Capstone Designation

This course DOES NOT satisfy the outcomes applicable for status as a FYE or Capstone.

SUNY General Education

This course is designated as satisfying a requirement in the following SUNY Gen Ed category
Mathematics (and Quantitative Reasoning)

FLCC Values

Institutional Learning Outcomes Addressed by the Course
Inquiry and Interconnectedness

Course Learning Outcomes

Course Learning Outcomes

1. Understand and apply the Central Limit Theorem.
2. Select the appropriate probability distribution by validating the necessary conditions.
3. Build a confidence interval to estimate a population parameter and interpret the result.
4. Construct a hypothesis test to determine the validity of a claim.

Outline of Topics Covered

1) Sample Variability
a) Sampling Distributions
b) The Central Limit Theorem
c) Applications of the Central Limit Theorem
2) Introduction to Statistical Inference
a) The Nature of Hypothesis Testing
b) The Hypothesis Test -classical and probability value approaches
c) Estimation
3) Inferences Involving One Population
a) Inferences about the Population Mean
b) Inferences about Proportion **mention confidence interval*
c) Inferences about Variance and Standard Deviation
4) Inferences Involving Two Populations
a) Independent and Dependent Samples
b) Inferences concerning the difference between Two Independent Means (Large Samples)
c) Inferences concerning Two Variances
d) Inferences Concerning the Difference between Two Independent Means (Small Samples)
e) Inferences concerning Two Dependent Means

f) Inferences concerning Two Proportions
5) Additional Applications of Chi-square
a) Chi-square Statistic
b) Inferences concerning Multinomial experiments
c) Inferences concerning Contingency Tables
6) Analysis of Variance
a) Introduction to the Analysis of Variance Technique
b) The Logic behind ANOVA
c) Applications of Single-Factor ANOVA