



Catalog Description:

QMB 2100 is the basic statistics course offered by the Department of Business. It applies basic statistical methods to business problems with emphasis on learning to select the appropriate problem solving method, applying the chosen method, and interpreting the solution.

3 credits

Pre – corequisite MAC 1105, College Algebra

Co-requisite QMB 2100L, Statistics Laboratory

Course Competencies:

Competency 1: The Student will demonstrate an understanding of the organization and application of business statistics by:

- a. Examining situations in which quantitative methods may be applied to business decision making.
- b. Describing situations when quantitative methods can assist managers with decision making.
- c. Describing situations of when to use a frequency distribution to present data.
- d. Creating frequency distributions.
- e. Contrasting the methods of data presentation.

Competency 2: The student will demonstrate a knowledge of the measures of central tendency by:

- a. Applying the sample and population mean formulas.
- b. Solving for the median and mode.
- c. Illustrating applications of the geometric mean.
- d. Contrasting the measures of central tendency.
- e. Using a spreadsheet software to analyze data.

Competency 3: The student will apply the measures of central tendency to grouped data by:

- a. Demonstrating the application of the mean in group data.
- b. Computing the median and other factual measures.
- c. Using the observation process to determine the mode.
- d. Contrasting the measures of central tendency.
- e. Comparing the arrangement of the measures of central tendency in skewed and unskewed data.

Competency 4: The student will apply measures of dispersion to sample and population data by:

- a. Defining the measures of dispersion used for both grouped and ungrouped data.
- b. Contrasting the values of the standard deviation and the average deviation.
- c. Differentiating normal and abnormal distributions with regard to dispersion and skewness.
- d. Synthesizing the average deviation, standard deviation and quartile deviation into a useful description of a set of data.
- e. Interpreting the meaning of the measures of dispersion.

Competency 5: The student will compute basic probabilities by:

- a. Solving problems using the rules of addition and multiplication.
- b. Applying permutations.
- c. Applying combinations.

- Competency 6: The student will distinguish between discrete and continuous distributions by:
- Calculating probabilities applying a binomial probability distribution.
 - Calculating probabilities applying a Poisson distribution.
 - Calculating probabilities applying the normal probability distribution.
 - Describing the differences between discrete and continuous probability distributions.
- Competency 7: The student will apply the Empirical rule to sets of data by:
- Describing the proportional distribution under the normal curve.
 - Appraising a problem and developing an expected result.
 - Solving problems applying **z values**.
 - Comparing solutions with expectations.
- Competency 8: The student will distinguish the various sampling methods and interpret applications of the Central Limit Theorem by:
- Describing sampling methods for statistical analysis.
 - Applying the Central Limit Theorem.
 - Demonstrating the procedures involved in the calculation of confidence intervals.
 - Demonstrating the procedures used in establishing sample size.
- Competency 9: The student will interpret and analyze business problems using hypothesis testing by:
- Applying the techniques known as Null Hypotheses Testing.
 - Analyzing the difference between two means.
 - Differentiating between Type I and Type II errors.
 - Analyzing the difference between two proportions.
 - Applying hypothesis testing using both a known and unknown population standard deviation.
 - Applying statistical decision theory to business decisions in the selection of alternative courses of action.
- Competency 10: The student will demonstrate knowledge of non-parametric statistical techniques by:
- Understanding when to use non-parametric statistics.
 - Applying a chi-square test.
 - Interpreting chi-square results.
- Competency 11: The student will use correlation and regression on business problems by:
- Knowing when to apply Correlation & Regression.
 - Applying simple regression analysis.
 - Applying and interpreting and applying the coefficient or correlation.
 - Applying statistical decision theory to business decisions in the selection of alternative courses of action.
- Competency 12: The student will apply statistical techniques to real world problems by:
- Searching websites for research data.
 - Extracting information from websites.
 - Creating a research problem based upon the investigation.
 - Applying a statistical model to analyze the problem or issue.
 - Interpreting the results of the research problem