

Northwest Arkansas Community College
Business and Computer Information Systems Division

Discipline Code

CISQ

Course Number

2013

Course Title

Business Statistics

Catalog Description

Introduction to probability and statistics. Topics include collecting, presenting, and describing data probability distribution including normal, sampling student- T and F-distributions decision making through hypothesis testing and simple linear regression. Prerequisite: MATH 1203 College Algebra (CISQ 1103 Intro to Computer Information recommended).

Prerequisites

MATH 1203-College Algebra, (CISQ 1103-Intro to Computer Information recommended).

Credit Hours

3 credit hours

Contact hours

45 lecture/lab contact hours

Load hours

3 load hours

Semesters Offered

On Demand

ACTS Equivalent

Grade Mode

A-F

Learning Outcomes

The student will:

- Use statistical vocabulary.
- Calculate and interpret measures of central tendency and measures of dispersion for sample and population data.
- Organize raw data into frequency tables and frequency distributions.

- Analyze data with graphic presentations (Bar Chart, Pie Chart, Line Chart, Histogram, and Scatter Plot as applicable).
- Calculate probabilities.
- Use Sampling Distributions and apply the Central Limit Theorem to calculate probabilities for any distribution.
- Calculate and interpret Confidence Intervals for unknown population means and unknown population proportions.
- Apply concepts of discrete probability and continuous probability in real life scenarios.
- Determine correlation and causation and distinguish between them in context.
- Apply concepts of single sample hypothesis testing and utilize t-tests and z-tests in real world situations.
- Apply the concepts of two sample hypothesis testing and utilize t-tests and z-tests, and ANOVA in real world situations.
- Choose between a one-tailed and two-tailed t-test, when given a hypothesis test.

General Education Outcomes Supported

Students can achieve mathematical literacy.

Standard Practices

Topics list

- Probability Theory
- Research design as applied to hypothesis testing
- Central Limit Theorem
- Z-distribution
- t-distribution
- Confidence intervals
- Experimental design
- Conditions to infer causation
- Single sample hypothesis testing
- Two sample hypothesis testing
- Significance levels
- Type I and Type II error
- Graphical displays of data (Bar Chart, Pie Chart, Line Chart, Histogram, and Scatter Plot as applicable)
- Correlation
- Simple linear regression

Learning activities

- This course requires additional work that may need to be completed out of class or in a virtual or on-campus lab.
- A focus of the class is for students to accurately interpret results of statistical computations and make an appropriate business decision.
- The instructor will provide problems to solve problems with statistical tools and make correct decisions regarding which tools are needed for given problems.
- The instructor will provide instructions and exercises on how to use Excel the TI83 / 84 calculator to aid in the analysis of different types of data.

- The instructor will model how to make a correct determination of what type of data is needed to address a specified problem, the method by which it will be collected and organized.
- The instructor will provide model how to make correct decisions regarding which statistical tools are needed for given situations.
- This course requires additional work that may need to be completed out of class or in a virtual or on-campus lab.

Assessments

- Homework module completion

Grading guidelines

- A = 90-100
 - B = 80-89
 - C = 70-79
 - D = 60-69
 - F = 59 & below
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- Students can use a calculator, including a TI83 / TI84, or Excel for all assignments.
 - Exams will be worth 60% of the overall grade for the class. Exams will be given open book, open note, and timed (no more than 120 minutes).
 - A minimum of 3 exams will be used; however, it is recommended that 6 exams be used.
 - Homework assignments and optional quizzes will be worth 40% of the overall grade of the class.
 - Quizzes are optional. If used, quizzes are open note and open book. Quizzes may be timed if desired.
 - Homework is open book, open note, and not timed.
 - Because exams and homework are open book, open note, extra credit will not be given.

