Northwest Arkansas Community College

Business and Computer Information Systems Division

Discipline Code
BUTR

Course Number
1033

Course Title
Data Analysis and Interpretation

Catalog Description
This is an introductory level course covering topics involving estimation of population and sample characteristics, research design and hypothesis testing, as well as measuring and predicting relationships. The course should enable the students to develop an understanding regarding the application and interpretation of basic data analysis techniques with an emphasis on statistical applications.

Prerequisites
MATH 2053 Finite Math with grade of “C” or better and computer competency requirement satisfied.

Credit Hours
3 credit hours

Contact hours
45 lecture/lab contact hours

Load hours
3 load hours

Semesters Offered
Fall, Spring, Summer

ACTS Equivalent

Grade Mode
A-F

Learning Outcomes

Students completing this course will:

- Define statistic, parameter, and estimate.
- Describe the difference between experimental and non-experimental designs.
- Identify independent and dependent variables when given an applied problem.
- Calculate and interpret an observed significance level from an Excel printout to compare to the significance level.
- Interpret the results of a t-test performed in MS Excel.
- Calculate a correlation coefficient from a given dataset.
- Compute a regression equation from a given dataset.
- Formulate a hypothesis test when given an application problem.
- Choose between a one-tailed and two-tailed t-test, when given a hypothesis and a research design

General Education Outcomes Supported

Standard Practices

Topics list

- Central Limit Theorem
- Z-distribution
- t-distribution
- Confidence intervals
- Experimental design
- Conditions to infer causation
- Hypothesis testing
- Significance levels
- Type I and Type II error
- Two sample t-tests
- Z tests
- Scatter diagrams
- Correlation
- Simple linear regression
- Multiple linear regression

Learning activities

- A focus of the class is for students, given the results from computation, to accurately interpret those results and make an appropriate business decision.
- The instructor will provide scenarios and situations (word problems) for students to solve problems with statistical tools and make correct decisions regarding which tools are needed for given scenarios.
- The instructor will provide instructions and exercises on how to use Excel, and other specified computing tools, such as TI83 / 84 calculator, to supplement and 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 scenario or problem, and the method by which it will be collected.
- This course requires additional work that may need to be completed out of class or in a virtual or on-campus lab.

Assessments

Grading guidelines

- A—90-100%
- B—80-89%
- C—70-79%
- D—60-69%
- F—Below 60%
- FP—Failure to Participate

Students can use a calculator, including a TI83 / TI84, for all assignments.

Students can use a 1 standard notebook size sheet of paper (cheat sheet) with formulas / notes written on front and back of paper for all assignments.