University of Arkansas − Fort Smith
5210 Grand Avenue
P.O. Box 3649
Fort Smith, AR 72913–3649
479–788–7000

General Syllabus:

MGMT 2963 Business Statistics

Credit Hours: 3 Lecture Hours: 3 Laboratory Hours: 0

Prerequisite: MATH 1303 College Mathematics and Quantitative Literacy or higher MATH course
Prerequisite or corequisite): Demonstrated competency in business computing as defined by the College of Business

Effective Catalog: 2019-2020

I. Course Information

A. Catalog Description

Statistical methods used in studying business and economic data, focusing on measures of central tendency and dispersion, probability, sampling, statistical inference, estimation, hypothesis testing, index numbers, regression and correlation.

II. Student Learning Outcomes

A. Subject Matter

Upon successful completion of this course, the student will be able to:

1. Distinguish between and define: sample and population, qualitative and quantitative variables, descriptive and inferential statistics, the various levels of measurement of data.
2. Construct and interpret a frequency distribution, and present the results graphically.
3. Understand how to calculate the following measures of central tendency: the mean, weighted mean, geometric mean, median, and mode.
4. Calculate the following measures of dispersion: range, variance, standard deviation, and coefficient of variation of a data set.
5. Calculate and interpret percentiles and the coefficient of skewness.
6. Apply the counting rules (combinations and permutations) and the concepts and rules of probability.

7. Use and apply the binomial, hypergeometric, and Poisson discrete probability distributions.
8. Use and apply the uniform and normal probability density functions.
9. Utilize the above concepts to probabilistically model real world events.
10. Understand and apply simple random sampling, systematic random sampling, stratified random sampling, and cluster sampling and explain why proper sampling technique is important.
11. Explain and utilize the central limit theorem to solve probability calculations.
12. Understand the terminology and rationale behind hypothesis tests and be able to conduct one-sample tests of hypothesis (both large and small sample).
13. Compute and utilize the correlation coefficient and coefficient of determination.
14. Specify and estimate functional relationships using linear regression analysis (bivariate and multivariate).
15. Understand and utilize binary variables, prediction and forecasting, marginal analysis and interpretation in the context of linear regression.
16. Apply the above tools using the Excel spreadsheet software package.

B. University Learning Outcomes

This course enhances student abilities in the following areas:

Analytical Skills

Critical Thinking Skills - Students will collect, organize, present, analyze, and interpret data to assist in making more effective decisions. Students will utilize various techniques to analyze realistic statistical problems confronting business managers.

Quantitative Reasoning - Students will apply appropriate mathematical models to business problems, run the statistical analysis, and draw inferences.

III. Major Course Topics

A. What is Statistics?
B. Frequencies and Graphic Presentation
C. Numerical Measures
D. Displaying and Exploring Data
E. Survey of Probability Concepts
F. Discrete Probability Distributions
G. Continuous Probability Distributions
H. Sampling Methods and the Central Limit Theorem
I. Estimation and Confidence Intervals
J. One-sample Tests of Hypothesis
K. Linear Regression and Correlation