Date Adopted: _____
Date Reviewed: Aug 2015
Date Revised: Aug 2015

BUS 272 – Business Statistics II

I. **BUS 272 – Business Statistics II– 3 Semester Hours**

II. **Course Description**
This course is a continuation of BUS 271. Topics include sampling theory, statistical inference, regression, and correlation, chi-square, analysis of variance, time series, index numbers, and decision theory.

III. **Prerequisite**
BUS 271

IV. **Textbook**
Textbook: Statistical Techniques in Business and Economics, 16th Edition
Publisher: McGraw-Hill
Authors: Lind, Marchal, Wathen

V. **Course Objectives**
1. The student will gain knowledge of the importance of small samples.
2. The student will understand the uses of analysis of variance.
3. The student will discuss the how's and why's of regression and correlation analysis.
4. The student will evaluate nominal-level data.
5. The student will explain the mechanics of various nonparametric methods.
6. The student will understand why we use index numbers.
7. The student will gain knowledge of time series analysis.
8. The student will discuss why we have decision making under uncertainty.
9. The student will understand statistical quality control.

VI. **Course Outline of Topics**
1. The student will be required to demonstrate attainment on each course competency by performing the objectives listed under each competency.
   The student will gain knowledge of the importance of small samples.
   a) contrast the "z" distribution with the "t" distribution.
   b) test for the population mean.
   c) work problems involving paired observations.
2. The student will understand the uses of analysis of variance.
   The student will:
   a) describe the characteristics of the "f" distribution.
   b) work problems with equal sample sizes.
   c) work problems with unequal sample sizes.
   d) compute two-way analysis of variance.
3. The student will discuss how's and why's of regressions and correlation analysis.
   The student will:
   a) draw a scatter diagram.
   b) calculate the coefficient of correlation and explain.
   c) compute the coefficient of determination.
   d) test for the significance of the coefficient of correlation.
   e) explain rank-order correlation.
   f) compute the regression equation.
   g) plot the regression equation on a scatter diagram.
   h) figure the standard error of estimate.

i) compute confidence-interval estimates.
j) know the multiple regression equation.
k) figure the multiple standard error of estimate.
l) work multiple correlation problems.
m) tell how to know whether or not the multiple regression model is valid.
n) evaluate individual regression.
o) describe the steps in stepwise.

4. The student will evaluate nominal-level data.
   The student will:
   a) define what the chi-square is.
   b) list the characteristics of chi-square.
   c) compute chi-square using equal frequencies.
   d) figure chi-square using unequal frequencies.
   e) compute multiple chi-squares.
5. The student will explain the mechanics of various nonparametric methods.
   The student will:
   a) understand the Sign Test.
   b) compute values of the Mann-Whitney U Test.
   c) work problems involving the Kruskal-Wallis Test.
   d) compute problems using the Wilcoxon Matched-Pair Signed Rank Test of Differences.
6. The student will understand why we use index numbers.
   The student will:
   a) tell why we construct and publish indexes.
   b) know the four types of index numbers.
   c) work problems using unweighted indexes.
   d) compute problems using weighted indexes.
   e) figure a value index.
   f) work problems which use a special-purpose index.
   g) compute real income, deflated sales, and the purchasing power of the dollar.
7. The student will gain knowledge of time series analysis.
   The student will:
   a) list and explain the four components of a time series.
   b) compute the equation for a straight line using the least squares method.
   c) work problems with three, four, and five year moving averages.
   d) figure a seasonal index using both the average method and the ratio-to-moving-average method.
8. The student will discuss why we have decision making under uncertainty.
   The student will:
   a) list and describe the three elements of the decision-making process.
   b) compute and understand a payoff table, expected payoff opportunity loss, and expected opportunity loss.
   c) understand the regret strategies of maximum, maximize, and minimize.
   d) figure out the value of perfect information.
   e) know how decision trees are used.
9. The student will understand statistical quality control.
   The student will:
   a) tell why statistical quality control is so important.
   b) define chance causes, assignable causes, in control, and out of control.
   c) construct a mean and range chart.
   d) construct two charts for attributes.
   e) construct an operating characteristic curve.

VII. **Evaluation and Assessment**
Evaluation and assessment will be determined by the instructor and specified on the instructor's class syllabus. Grades will be based upon following scale: A = 90 – 100%, B = 80 – 89%, C = 70 – 79%, D = 60 – 69%, and F = below 60%.

VIII. **Attendance**
Students are expected to attend all classes for which they are registered. Students who are unable to attend class regularly, regardless of the reason or circumstance, should withdraw from that class before poor attendance interferes with the student's ability to achieve the objectives required in the course. Withdrawal from class can affect eligibility for federal financial aid.

IX. **Statement on Discrimination/Harassment**
The College and the Alabama State Board of Education are committed to providing both employment and educational environments free of harassment or discrimination related to an individual's race, color, gender, religion, national origin, age, or disability. Such harassment is a violation of State Board of Education policy. Any practice or behavior that constitutes harassment or discrimination will not be tolerated.

X. **Americans with Disabilities**
The Rehabilitation Act of 1973 (Section 504) and the Americans with Disabilities Act of 1990 state that qualified students with disabilities who meet the essential functions and academic requirements are entitled to reasonable accommodations. It is the student's responsibility to provide appropriate disability documentation to the College. The ADA Accommodations Office is in FSC 305 (205-856-7731).