NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
BUS 222 - BUSINESS STATISTICS II (3 CR.)

Course Description

Continues study of inferential statistics and applications of statistical techniques and methodology in business. Includes analysis of variance, regression and correlation measurement of business and economic activity through the use of index numbers, trend, cyclical, and seasonal effects and the Chi-Square distribution and other non-parametric techniques. Lecture 3 hours per week.

General Course Purpose

Business Statistics II is the second of a two-course sequence for the student intending to transfer to a business program in a four-year college or university. After a review of hypothesis testing for single populations, the student will continue with more advanced topics in inferential statistics used in business environment including chi-square tests and analysis of variance.

Course Prerequisites/Co-requisites

Prerequisite is BUS 221 - "Business Statistics I" or division approval. For BUS 221 is MTH 163.

Course Objectives

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

A. Hypothesis Testing and Confidence Intervals
   1. solve problems testing the difference in two means and two proportions
   2. construct confidence intervals to estimate the difference in the means of two populations

B. Analysis of Variance
   1. The Completely Randomized Design
      a. present the ANOVA table
      b. reach a statistical conclusion
      c. construct confidence intervals
   2. The Randomized Block Design
      a. present the ANOVA table
      b. reach a statistical conclusion
   3. Two Way ANOVA With Replication
      a. draw an interaction plot
      b. perform an analysis of variance
C. Linear Regression and Correlation
   1. create and interpret scatter diagrams
   2. mathematically fit regression lines to given data
   3. check model assumptions using residual plots and normal probability plot
   4. measure the relationship among data through the calculation of the coefficients of determination and correlation
D. Time Series Forecasting
   1. identify the components of time series

2. produce forecasts using smoothing techniques
3. calculate trend equations
4. calculate seasonal indexes
E. Non-parametric Methods
   1. perform the sign test for paired data
   2. perform the Wilcoxon Signed-Rank test
   3. perform the Wilcoxon Rank-Sum test for comparing two treatments
   4. perform Kruskal-Wallis test for comparing three or more treatments

F. Analysis of Categorical Data
   1. compare theoretical frequencies to actual frequencies using chi-square goodness-of-fit test
   2. determine whether the two variables are independent using chi-square test of independence

G. Computer Applications
   1. Use statistical package to run a simple regression model and an analysis of variance

Major Topics to be Covered

➤ Advanced Hypothesis Testing
➤ Analysis of Variance
➤ Simple Regression Analysis
➤ Time Series Forecasting
➤ Non-parametric Methods
➤ Categorical Data Analysis
➤ Computer Application

Optional Topics

• Multiple Regression using statistical package
• Index numbers
• Control charts using Minitab