



**MERCER COUNTY COMMUNITY COLLEGE**  
**Division of Business and Technology**

**COURSE OUTLINE**

**BUS 206**  
 Course Number

**BUSINESS STATISTICS II**  
 Course Title

3  
 Credits

3  
 Class Hours

0  
 Lab Hours

**Main Text:**

Title: Basic Business Statistics:  
 Concepts and Applications  
 Author: Mark L. Berenson and David M. Levine  
 Publisher: Prentice Hall  
 Edition: 10<sup>th</sup>

**Catalog Description:**

Further testing of hypotheses and confidence intervals, plus coverage of regression analysis, chi-square, analysis of variance, and non-parametric measurements with use of several computer-based statistical packages.

**Prerequisites:**

MAT 141 with C grade or higher  
 BUS 205 with a C grade or higher

**Corequisite:**

None

**Course Coordinator:**

Professor Framarz Khoushab

Instructor's Name: \_\_\_\_\_

Time/Location: \_\_\_\_\_

Office/Phone Nos. \_\_\_\_\_

Office Hours: \_\_\_\_\_

E-Mail: \_\_\_\_\_

Rev. 08/23/2007

## **Statistics for Business and Economics**

This course is the second half of a one year course in statistics for business and economics. The aim is for students to perform statistical analysis on various inferential real life problems. By the end of the course students will be able to:

1. understand the procedures of inferential statistical analysis concerning:
  - a) two population parameters
  - b) regression and correlation
  - c) analysis of variance (ANOVA)
  - d) analysis of categorical data and non-parametric statistic
2. p-value approach and critical region approach in hypothesis testing
3. perform statistical analysis using MINI TAB

### **Unit 1: Hypothesis Testing**

- one-sample testing for the mean, using z or t test
- one sample tests for the proportion
- type I error and type II error
- P-value and critical region approach in solving hypothesis testing
- Two-sample tests for the differences in the two means using Z or T test

#### **Learning Objectives:**

The student will be able to:

- Use hypothesis testing to test a mean and proportion
- Use p-value approach and critical region approach in solving problems
- Use hypothesis testing for two-samples tests involving numerical variables

### **Unit 2: Simple Linear Regression and Correlation:**

1. type of regression models
2. LSM (least square method)
3. prediction in regression analysis
4. measure of variation, SST, SSR, SSE
5. correlation of determination,  $R^2$
6. Residual analysis
7. inferences about the slope and correlation coefficient

#### **Learning Objectives:**

The student will be able to:

- compute the equation of simple regression line from a sample data and interpret the slope and the intercept of the equation
- use the residual analysis in testing the assumptions under linear regression
- use testing hypothesis for the slope of the regression model
- compute prediction interval per an individual response,  $y$  or for a mean response,  $(y/x)$

### **Unit 3: Multiple Regressions:**

- a) developing the multiple regression model
- b) residual analysis for the multiple regression
- c) testing for the significance of the multiple regression model using F test

- d) inference concerning the population regression coefficients
- e) dummy variable

**Learning Objectives:**

The student will be able to:

- Determine which independent variables should be included in the regression model
- evaluate multiple regression
- Use ANOVA table to interpret the output of multiple regression

**Unit 4: Chi-square and Nonparametric statistics**

1. chi-square, goodness-of fit test
2. contingency analysis independence test
3. Mann-Whitney test

**Learning Objective:**

The student will be able to:

- Understand how and when to use chi-square test for independence and goodness of fit test
- Understand how and when to use Mann-Whitney test and solve business problems
- Analyze data by using chi-square test of independence and goodness of fit

**Unit 5: Analysis of Variance**

1. one-way analysis of variance
2. the randomized block design
3. two-way analysis of variance

**Learning Objective:**

The student will be able to:

- Use one-way analysis and variance to test for difference among the means of several groups
- Understand when to use a randomized block design
- Compute and interpret the results of a two-way ANOVA

**Evaluation Procedure:**

Quizzes	30%	
Research Paper	10%	
Mid-Term	30%	Unit 1 & 2
Final	30%	Unit 3, 4 & 5

**GRADING**

Letter Grade	Nominal %
A	93-100
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	70-76

D	60-69
F	00-59

**Academic Integrity Statement:**

“A student who knowingly represents work of others as his/her own, uses or obtains unauthorized assistance in the execution of any academic work, or gives fraudulent assistance to another student is guilty of cheating. Violators will be penalized.” (Student Handbook)

**Classroom Conduct Statement:**

It is the student’s responsibility to attend all of their classes. If they miss a class meeting for any reason, students are responsible for all content that is covered, for announcements made in their absence, and for acquiring any materials that have been distributed in class. If students walk into a class after it has begun, it is expected that they choose a seat close to where they entered the room so that they do not disrupt the class meeting.

Students are expected to follow ordinary rules of courtesy during class sessions. Engaging in private, side conversations during class time is distracting to other students and to the instructor. Leaving class early without having informed the instructor prior to class is not appropriate. Unless there is an emergency, leaving class and returning while the class is in session is not acceptable behavior. Disruptive behavior of any type, including sharpening pencils during class while someone is speaking, is not appropriate.

The college welcomes all students into an environment that creates a sense of community of pride and respect; we are all here to work cooperatively and to learn together.

**Any student who has special needs because of a disability is entitled to receive accommodations. Eligible students at Mercer County Community College are assured services under the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973.**

**If you believe you are eligible for services, please contact Arlene Stinson, the Director of Academic Support Services. Ms. Stinson’s office is LB221, and she can be reached at (609) 570-3525.**

**James Kerney Campus students may contact Assistant Dean Donald Jones in KC216 or at (609) 570-3147.**