



COURSE OUTLINE

Course Number BUS 205	Course Title BUSINESS STATISTICS I	Credits 3
Hours: lecture/Lab/Other 3/3/0	Co- or Pre-requisite MAT-038 or MAT-044 with a minimum C grade	Implementation sem/year Jan. 2012

Catalog description :

Emphasis on the application of statistical inference in business and economics, with attention to descriptive statistics, probability theory, sampling distribution and inference statistics. Additionally, includes testing of hypotheses and confidence intervals.

Is course New, Revised, or Modified? [Modified courses are those which have a new prefix or course number]

Required texts/other materials:

Business Statistics and Analytics in Practice
Bowerman, Drougas, Duckworth, Froelich, Hummel, Moninger, and Schur
McGrwhill

Contact the MCCC Bookstore for the Latest Edition

Revision date:

Summer 2020

Course coordinator:

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Information resources: (Describe the primary information resources that support the course, including books, videos, journals, electronic databases, websites, etc. To request new materials for your course, use the library request form at:

www.mccc.edu/student_library_course_form.shtml)

Other learning resources: (Describe any other student learning resources that are specific to this course, including any special tutoring or study group support, learning system software, etc.)

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. Demonstrate descriptive statistics
2. Demonstrate basic probability theory
3. Demonstrate sampling distribution and probability distribution function
4. Demonstrate confidence interval and hypothesis

General Education Knowledge Goals

Goal 1. Communication. Students will communicate effectively in both speech and writing.

Goal 2. Mathematics. Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.

MCCC Core Skills

Goal A. Written and Oral Communication in English. Students will communicate effectively in speech and writing, and demonstrate proficiency in reading.

Goal B. Critical Thinking and Problem-solving. Students will use critical thinking and problem solving skills in analyzing information.

Unit 1: Descriptive Statistics

- Data analysis without probability
- Population vs. samples
- Discrete and continuous data
- Histogram
- Charting the frequency distribution
- Skewed distribution
- Mean, median, and mode
- Variance, standard deviation, percentile, quartile, and coefficient of skewness.

Learning Objectives:

The student will be able to:

- Organize numerical data (CG 1, 2 CS A, B)
- Develop table and provide graphical presentation for numerical and categorical data (CG 1, 2 CS A, B)
- Calculate, mean, median, mode, variance, standard deviation, coefficient of skewness and co-efficient of variation CG 1, 2 CS A, B)

Unit 2: Probability theory and probability distribution:

1. inductive statistics and probability
2. interpretation of probability
3. prior, and empirical probability
4. randomness intuitive understanding
5. independence
6. special rule addition mutually exclusive events
7. permutation and combination
8. conditional probability

9. probability distribution
10. binomial probability distribution
11. poisson distribution
12. normal distribution

Learning Objectives:

The student will be able to:

- Identify the problem as involving either a permutation or a combination and solve the problem (CG 1, 2 CS A, B)
- Identify the events (possibly using a Venn Diagram) as either dependent, independent, or mutually exclusive and solve the problem (CG 1, 2 CS A, B)
- Compute conditional probability (CG 1, 2 CS A, B)
- Use Bayes' theorem to revise probability (CG 1, 2 CS A, B)
- Compute probabilities from Binomial and poisson distribution (CG 1, 2 CS A, B)
- Use binomial and Poisson distribution to solve business problems. Compute probabilities from the normal distribution (CG 1, 2 CS A, B)

Unit 3: Sampling Distribution and Interval Confidence

- a) Probability distribution of sample mean
- b) Sampling variance as an estimate of population variance
- c) Sample proportion as an estimate of population proportion
- d) Finding confidence interval for MU (population mean) when population standard deviation is known
- e) Finding confidence interval for MU when population standard deviation is unknown
- f) Finding confidence interval for MU when sample size (n) is very large
- g) Finding confidence interval for population proportion

Learning Objectives:

The student will be able to:

- Understand the concept of sampling distribution (CG 1, 2 CS A, B)
- Compute the probability related to the sample mean and sample proportion (CG 1, 2 CS A, B)
- Develop confidence interval for population mean and population proportion (CG 1, 2 CS A, B)

Unit 4: Hypothesis Testing

1. hypothesis testing for MU (population mean) when population standard deviation is known
2. hypothesis testing for MU (population mean) when population standard deviation is unknown
3. hypothesis testing for population proportion
4. type I error vs. type II error
5. p-value

Learning Objective:

The student will be able to:

- Use hypothesis testing to test mean, and proportion (CG 1, 2 CS A, B)
- Test hypothesis including one tail and two tail test (CG 1, 2 CS A, B)
- Use hypothesis testing to solve problems (CG 1, 2 CS A, B)

Evaluation Procedure:

Quizzes	40%	
Mid-Term	30%	Unit 1& 2
Final	30%	Unit 3&4

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:

As per the student handbook, “A student will be guilty of violating academic integrity if he/she (a) knowingly represents the work of others as his/her own, (b) uses or obtains unauthorized assistance in the execution of academic work, or (c) gives fraudulent assistance to another student.” Students should read the Academic Integrity policy in the MCCC Rights and Responsibilities Student Handbook. Academic Dishonesty will result in failure of this course

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.