

I. CATALOG DESCRIPTION:

- A. Division: Business and Communications
Department: Economics/Business Calculations
Course ID: BUSCAL 208
Course Title: Business and Economics Statistics
Units: 4
Lecture: 4 hours
Prerequisite: MATH 095 or eligibility for MATH 102 as determined through the SBVC assessment process.

B. Course Description:

A review of statistical methods commonly used in business and economics including measures of central tendency; measures of dispersion and skewness; probability concepts and distributions; statistical inferences; parametric and non-parametric hypothesis testing; index numbers time series analysis; simple regression, and correlation analysis. This course is also offered as ECON 208.

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II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: One.

III. EXPECTED OUTCOME FOR STUDENTS

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

- A. Analyze quantitative data by computing various measures of central tendency and measures of dispersion (for both raw data and data organized in frequency distributions);
B. Interpret and classify various experiments of chance as either classical, relative
C. Determine the probability that an outcome of an experiment will lie between a range of values by using the standard normal distribution;
D. Define what is meant by hypothesis testing and describe the five-step hypothesis testing procedure to test hypothesis about business and economic conditions;
E. Write short statements concerning the difference between statistical correlation and causation in economic modeling;
F. Use regression analysis to make predictions about unknown, future business conditions or economic indicators.

IV. CONTENT:

- A. What are statistics?
B. Summarizing data—Frequency distributions and graphic presentations.
C. Describing data—Measures of central tendency.
D. Measures of dispersion and skewness.
E. Probability concepts.
F. Discrete probability distributions.
G. The normal probability distribution.
H. Sampling methods and distributions.
I. Test of hypotheses.
J. Test—small samples.
K. Analysis of variance.
L. Simple correlation analysis.
M. Simple regression analysis.
N. Multiple regression and correlation.

- O. Nominal data and the Chi-Square distribution.
- P. Nonparametric methods.
- Q. Index numbers.
- R. Time series and forecasting.

V. METHODS OF INSTRUCTION:

- A. Lecture-discussion
- B. Homework
- C. Reading Assignments
- D. Quizzes and Examinations
- E. Handouts

VI. TYPICAL ASSIGNMENTS:

- A. Reading and Writing
Read Chapter 1 and be prepared to discuss the various types of statistics and their uses. Write a brief depiction of how the use of statistics can be helpful in everyday living. For example, describe how measures of central tendency apply to gasoline consumption for a consumer.
- B. Problem solving or performance
Read through chapter on measures of central tendency and complete end of chapter exercises.
- C. Compile a grocery list of items and estimate what they cost 20 years ago. Estimate what the same items cost today. How is the average price for both lists different (show your formula and complete the average prices)?

VII. EVALUATION(S):

- A. Methods of Evaluation
 - 1. Objective quizzes and examinations
Sample Examination Question 1:
A sample of fifty patients was taken on how many days they were treated before being released from a drug rehabilitation program.
These data are presented below.
Construct a frequency distribution table with the first class interval being 30 up to 40.
Then draw a frequency distribution polygon for these data using the frequency distribution table you just constructed.

45	62	57	78	66	50	66	48
55	30	72	45	49	42	77	80
57	54	55	57	65	35	78	55
89	51	47	34	35	43	69	51
82	40	95	57	41	75	68	81

Sample Examination Question 2:

Manny manager has reviewed the maintenance records of a sample of identical machines to study the relationship between the age of the machine, in years, and the yearly maintenance cost, in dollars.

Using his data:

- a. draw a scatter diagram
- b. calculate the correlation coefficient
- c. test if this correlation is significant at the 5% level
- d. calculate the regression equation in the form $y = a + bx$
- e. make a point estimate prediction for the maintenance cost of a machine that is 2 years old
- f. find a 95% confidence interval for the maintenance cost of a machine that is 2 years old

Age (years)	Maintenance Cost (hundreds of dollars)			
<u>x</u>	<u>y</u>	<u>xy</u>	<u>x²</u>	<u>y²</u>
2	2	4	4	4
0.5	1	.5	.25	1
3	4	12	9	16
1	3	3	1	9
3	4	12	9	16
2.5	3	7.5	6.25	9
3	5	15	9	25
1	2	2	1	4
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16	24	56	39.5	84

2. Homework
- B. Frequency of Evaluation
1. Weekly quizzes
 2. Weekly homework assignments
 3. Four examinations

VIII. TYPICAL TEXT(S):

Clayton and Giesbrecht. A Guide to Everyday Economic Statistics, 4th Edition.
Boston: Mc Graw-Hill, 1998

Lind, Douglas A. and Robert D. Mason, Basic Statistics for Business and Economics. Boston: Irwin, 1994.

Mason, Lind and Marchal. Statistical Techniques In Business and Economics, 10th Edition . Boston: Mc Graw-Hill, 1999.

IX. OTHER SUPPLIES REQUIRED FOR STUDENTS: Calculator.

Form Completed On: 09/09/99 11:39 AM