SOUTHEAST COMMUNITY COLLEGE
DIVISION OF ARTS AND SCIENCES
Mathematics
Revision Date: 07-01-23

I. CATALOG DESCRIPTION

Course Number:	BSAD2170 or MATH2170
Course Title:	Applied Statistics
Prerequisite(s):	Intermediate Algebra or equivalent test score
Catalog Description:	The course is an introduction to basic probability and statistical methods that are used in a wide variety of disciplines. Topics include descriptive statistics, probability foundations, probability distributions, sampling distributions, methods of statistical inference, and bivariate relationships.
Credit Hours:	3.0
Class Hours:	45
Lab Hours:	0
Contact Hours:	45

II. COURSE OBJECTIVES: *Course will:*

A. Develop student awareness of various sampling methods.
B. Examine methods of gathering, organizing, and summarizing data.
C. Investigate and illustrate measures of central tendency, dispersion, and position.
D. Demonstrate the application of probability and probability distributions.
E. Introduce and analyze sampling distributions and their application.
F. Examine inferential statistics through confidence intervals and hypothesis testing.
G. Develop analysis and presentation of bivariate data.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

A. Student Learning Outcomes: *Student will be able to:*

1. Use technology to perform statistical calculations and create pictorial displays of data.
2. Differentiate between appropriate and inappropriate sampling methods.
3. Distinguish between sample statistics and population parameters.
4. Classify data as quantitative or categorical/qualitative.
5. Construct and interpret frequency distributions, histograms, and other methods of organizing data.
6. Calculate and interpret measures of central tendency.
7. Calculate and interpret measures of dispersion.
8. Calculate and interpret measures of position.
9. Utilize appropriate probability procedures.
10. Apply various probability distributions to find probabilities and identify unusual outcomes.
11. Apply the concepts of the Central Limit Theorem.
12. Distinguish between the distribution of a data set and a sampling distribution.
13. Use sample data to estimate parameters by calculating and interpreting confidence intervals.
14. Use sample data to test statistical hypotheses about parameters.
15. Interpret the relationship between two variables using linear correlation coefficients.
16. Draw inferences and make predictions from linear regression equations when appropriate.

B. General Education Learning Outcomes

1. GELO #5: Analytical, Quantitative, and Scientific Reasoning

Outcome: Apply mathematical and scientific methods to solve problems from an array of contexts and everyday situations.

Outcome: Understand and create logical arguments supported by quantitative and scientific evidence and communicate those arguments in a variety of formats.

Outcome: Effectively develop strategies, algorithms, or experiments (or performing experiments) to better describe the systems or to solve the problems.

Outcome: Manipulate formulas, data sets, graphs, tables, etc. in a way to produce a meaningful outcome.

IV. CONTENT/TOPICAL OUTLINE *(course outline may provide more detailed information)*

A. Sampling methods.
B. Gather, organize, and summarize data.
C. Measures of central tendency, dispersion, and position.
D. Probability and probability distributions.
E. Sampling distributions.
F. Confidence intervals and hypothesis testing.
G. Bivariate data.

V. INSTRUCTIONAL MATERIALS

A. Required Text(s):

1. Triola, M., *Essentials of Statistics,* 7th Edition, Pearson, 2022.

VI. METHODS OF PRESENTATION/INSTRUCTION

A. Methods of presentation typically include a combination of the following:

1. Lecture
2. Discovery learning
3. Small group exploration and discussion
4. Technology applications
5. In-class activities
6. Collaborative projects

VII. METHODS OF EVALUATION

A. Methods of evaluation typically include a combination of the following:

1. Course grades, at the determination of the instructor, will be based on class and group participation, daily work, exams, presentations, projects, papers, and/or a portfolio.

2. Instructor will distribute and discuss the evaluation process and grading policies with students at the beginning of the term.

B. SCC GRADING SCALE

A+	95-100	C+	75-79	F	59 or less
A	90-94	C	70-74		
B+	85-89	D+	65-69		
B	80-84	D	60-64		

VIII. SPECIFIC COURSE REQUIREMENTS

A. Scientific or graphing calculator required.