

SOUTHEAST COMMUNITY COLLEGE
DIVISION OF ARTS AND SCIENCES
Mathematics
Revision Date: 07-01-25

I. CATALOG DESCRIPTION

Course Number: MATH2170 or BSAD2170
Course Title: Applied Statistics
Prerequisite(s): Intermediate Algebra or Institutional Placement Protocol
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. Utilize statistical terminology and notation.
- B. Examine methods of sampling, organizing, and summarizing data.
- C. Investigate measures of central tendency, dispersion, and position.
- D. Demonstrate the application of probability and probability distributions.
- E. Analyze sampling distributions and their application.
- F. Examine inferential statistics through confidence intervals and hypothesis testing.
- G. Explore concepts of bivariate data.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Perform statistical calculations and create graphical displays of data.
 - 2. Differentiate between appropriate and inappropriate statistical methods.
 - 3. Classify data using appropriate statistical terminology.
 - 4. Interpret measures of central tendency, dispersion, and position.
 - 5. Determine probabilities using various probability distributions.
 - 6. Apply the concepts of the Central Limit Theorem.
 - 7. Use sample data to estimate parameters by calculating and interpreting confidence intervals.
 - 8. Use sample data to test statistical hypotheses about parameters.
 - 9. Construct inferences and predictions using linear regression.
- 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. Data exploration.
- 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.
- H. Technology applications.

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.