Alexandria Technical and Community College

MATH 1447: Introduction to Statistics

A. COURSE DESCRIPTION

Credits: 4
Lecture Hours/Week: 4
Lab Hours/Week: 0
OJT Hours/Week: 0

Prerequisites:
This course requires any of these 10 prerequisites
- A score of 2 on test Algebra
  - MATH 0421 - Bridge to College Algebra (Minimum grade: 2.0 GPA Equivalent and Number of Years Valid: 5)
  - MATH 0431 - Intermediate Algebra (Minimum grade: 2.0 GPA Equivalent and Number of Years Valid: 5)
  - MATH 0429 - Beginning Algebra (Minimum grade: 2.0 GPA Equivalent and Number of Years Valid: 5)
  - MATH 1415 - Mathematical Reasoning
  - MATH 1420 - College Algebra
  - MATH 1421 - College Algebra
  - MATH 1425 - Precalculus
  - MATH 1426 - Calculus I
  - MATH 1460 - Quantitative Problem Solving

Corequisites: None

MnTC Goals: Goal 04 - Mathematical/Logical Reasoning

This course is primarily for business, science, liberal arts, psychology, and education majors. Topics studied include descriptive measures for empirical data, theory of probability, probability distributions, sampling distributions of statistics from large and small samples, estimation theory, hypothesis testing, correlation, and regression.

B. COURSE EFFECTIVE DATES: 03/04/2021 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Understanding and applying statistical terminology.
2. Summarizing statistical data graphically.
3. Determine and interpret the measures of center, variation, and box plots.
4. Apply basic concepts of probability: addition and multiplication rules.
5. Understand and apply probability through simulations.
6. Understand and apply binomial probability distribution.
7. Understand and apply normal probability distributions with application.
8. Sample distributions and estimators.
9. Understand estimates and sample sizes for a given population.
10. Understand and apply hypothesis testing: create, analyze, and summarize.
11. Utilize linear regression and correlation concepts.
12. Understand and apply a two sample test for a population mean.
D. LEARNING OUTCOMES (General)
   1. The learner will demonstrate an understanding of the basic concepts of descriptive statistics, probability, and the methods of statistical inference.
   2. The learner will demonstrate the applications of statistical concepts to a variety of applied problems.
   3. The learner will demonstrate the ability to use statistical software in applied statistical analysis problems.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies
   Goal 04 - Mathematical/Logical Reasoning
   1. Illustrate historical and contemporary applications of mathematical/logical systems.
   2. Explain what constitutes a valid mathematical/logical argument (proof).
   3. Apply higher-order problem-solving and/or modeling strategies.

F. LEARNER OUTCOMES ASSESSMENT
   As noted on course syllabus

G. SPECIAL INFORMATION
   None noted