Course Name: Principles of Statistics

Course Number: MAT*E167

Credits: 3

Catalog description: An introductory course in descriptive and inferential statistical procedures. Topics include graphical displays of data, measures of center and variability, basic probability theory, the normal distribution, sampling distributions, correlation and regression, estimation, and hypothesis testing. Use of statistical software is required.

Prerequisite: Satisfactory score on mathematics placement examination or MAT*137.

Prerequisite or parallel: ENG* 101.

General Education Competencies Satisfied:

HCC General Education Requirement Designated Competency Attribute Code(s):
☒ **QUAX**   **Quantitative Reasoning**

Discipline-Specific Attribute Code(s):

☒ **MATH**   **Mathematics elective**

General Education Goals and Outcomes:

☒ **Quantitative Reasoning:** Students will learn to recognize, understand, and use the quantitative elements they encounter in various aspects of their lives. Students will develop a habit of mind that uses quantitative skills to solve problems and make informed decisions.

Course Specific Objectives:
1. Describe data using numerical measures, tables and graphs.
2. Describe the relationship between two variables using data distributions.
3. Describe the relationship between two variables using correlation and regression.
4. Compute probabilities using probability rules and probability distributions.
5. Estimate population parameters based on sample statistics.
6. Conduct statistical hypothesis tests.

Course Content:

Introduction
> Definition/Overview of Statistics

Descriptive Statistics
> Organize/Describe/Summarize/Display categorical and quantitative data
> Compare data using distributions

The Normal Distribution
> z-scores
> Central Limit Theorem
> Areas under the curve

Correlation and Regression
> Describe the form, strength and direction of two quantitative variables
> Find the best fit equation

The Statistical Process
> Randomness
> Sampling
> Types of Studies

Probability
> Definitions
> Probability rules
> Random variables and probability models

Statistical Inference
> Use confidence intervals to estimate population parameters
> Conduct hypothesis tests based on significance levels and p-values

Use of Technology
> Utilize appropriate procedures in a statistical software package to complete all
> data analyses and statistical tests.

REV. 12/97

REV. 11/99

REV. 12/01

REV.   6/04; 8/30/04

REV. 11/06

REV. 01/2015

REV. 02/27/2017

MAT*E167