SUSSEX COUNTY COMMUNITY COLLEGE

Master College Syllabus

MATH108	STATISTICS	
COURSE #	COURSE TITLE	CLASSIFICATION
3	3	0
CREDITS	CLASS HOURS	LAB HOURS

RECOMMENDED TEXTS:

Title:	Elementary Statistics
Author:	Triola
Publisher:	Pearson
Publication Date:	12th Edition, 2014
ISBN:	9780321836960
Required:	TI-83 or TI-83 Plus Graphing Calculator

CATALOG DESCRIPTION: This course includes the following topics: organization of data, measures of central tendency and dispersion, probability, the normal and binomial distributions, confidence intervals, hypothesis testing, analysis of variance, and correlation.

PREREQUISITE: MATH017 (grade of CI) or MATH023 (grade of CI) or appropriate algebra placement score

TOPICS TO BE INCLUDED:

Introduction to Statistics
- Types of Data
- Critical Thinking
- Design of Experiments

Summarizing and Graphing Data
- Frequency Distributions
- Histograms
- Statistical Graphics

Statistics for Describing, Exploring, and Comparing Data
- Measures of Center
- Measures of Variation
- Measures of Relative Standing
- Exploratory Data Analysis (EDA)

Probability
- Fundamentals of Probability
- Counting and Factorial Rules, Combinations, and Permutations

Probability Distributions
- Random Variables
- Binomial Probability Distributions
- Mean, Variance, and Standard Deviation for the Binomial Distribution

Normal Probability Distributions
- The Standard Normal Distribution
- Applications of Normal Distributions
- Sampling Distributions and Estimators

The Central Limit Theorem

Estimates and Sample Sizes
- Estimating a Population Proportion
- Estimating a Population Mean: σ Known
- Estimating a Population Mean: σ Not Known

Hypothesis Testing
- Basics of Hypothesis Testing
- Testing a Claim about a Proportion
- Testing a Claim about a Mean: σ Known
- Testing a Claim about a Mean: σ Not Known

Correlation and Regression
- Basic Concepts of Correlation
- The Linear Correlation Coefficient
- Linear Regression

Analysis of Variance
- The Basics of One-Way Analysis of Variance (ANOVA)

COURSE COMPETENCIES/LEARNING OUTCOMES:

In a manner deemed appropriate by the instructor and approved by the department, students will be able to:

1. Categorize, organize, summarize and graphically present data. (GE1, GE2)
2. Interpret tables and graphs. (GE1, GE2)
3. Compute and interpret the meaning of measures of central tendency, variation, and relative standing: the mean, median, mode, variance, standard deviation, z-scores, 5 number summary, and the presence of outliers. (GE2)
4. Define and identify the following key sampling techniques: random, stratified, systematic, cluster, and convenience. (GE1, GE2)
5. Calculate the probability of an event using both discrete and normal distribution methods. (GE2)
6. Calculate permutations and combinations. (GE2)
7. Construct and/or identify a binomial probability distribution; find the mean, standard deviation, and compute associated probabilities. (GE2)
8. Solve and interpret solutions of problems using standard and nonstandard normal distributions. (GE1, GE2)
9. Recognize key aspects of the Empirical Rule and the Central Limit Theorem and use them in problem solving. (GE1, GE2)
10. Construct and interpret confidence intervals. (GE1, GE2)
11. Conduct and interpret hypothesis tests using both the traditional and p-value method. (GE1, GE2)
12. Find the value of the linear correlation coefficient and determine whether a significant linear correlation exists. (GE2)
13. Use technology to conduct a one way analysis of variance (ANOVA) and then interpret the results. (GE1, GE2)

The ability of students to demonstrate the course competencies is assessed by a cumulative departmental final exam designed to test the knowledge and skills specified by the learning outcomes. All students are required to take the departmental final exam in a proctored setting. The final exam must count for at least 25% of each student's final grade.

Summary statistics describing student performance on the departmental final exam are compiled twice a year. A comprehensive item analysis of the departmental final exam performance is conducted every two years. Assessment results are used to improve the teaching and learning of Statistics.

GRADES COUNTED IN THE GRADE POINT AVERAGE (GPA)

Grade Interpretation Points

A	Excellent	4.0
B+	Very Good	3.5
B	Good	3.0
C+	Above Average	2.5
C	Average	2.0
D	Poor	1.0
F	Fail	0.0
FN	Fail no-show	0.0

MATH108
Rev. 12/18/16 (med)