I. TITLE OF COURSE: SS2103- Stats-Social Behavioral Science

II. COURSE DESCRIPTION: Three **credit hours**
Three **credit hours of lecture and** 0 **credit hours of lab per week.**

This course will introduce students to many of the important concepts and procedures needed to interpret uses of statistics in the media, at home or at work and to use data to make decisions. The emphasis will be on performing statistical procedures and interpreting the results to draw conclusions. The course covers methods of descriptive statistics, probability theory, and inferential statistics, including confidence intervals, hypothesis testing, and linear regression. For each unit of credit, a minimum of three hours per week with one of the hours for class and two hours for studying/preparation outside of class is expected.

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Pre-requisite: MA1173 College Algebra or its equivalent.

III. PROGRAM AND/OR DEPARTMENT MISSION STATEMENT:

The mission of the Humanities and Social Sciences is to foster an appreciation of the role that the humanities and social sciences has played in the evolution of civilized society and to explore the ways that an understanding of theory and practice in philosophy, the social and behavioral sciences, the fine arts, and written and oral expression will enable students to participate thoughtfully in a global society.

IV. TEXTBOOK AND MATERIALS:

 1. Mario Triola. Elementary Statstics. 13th Ed. Pearson, 2018
 2. TI 84 Graphing Calculator
 3. Access the Excel spreadsheet software

V. SCCC OUTCOMES

Students who successfully complete this course will demonstrate the ability to do the following SCCC Outcomes.

II: Communicate ideas clearly and proficiently in writing, appropriately adjusting content and arrangement for varying audiences, purposes, and situations.

IV: Demonstrate mathematical skills using a variety of techniques and technologies.
V: Demonstrate the ability to think critically by gathering facts, generating insights, analyzing data, and evaluating information
VI: Exhibit skills in information and technological literacy

IX: Exhibit workplace skills that include respect for others, teamwork competence, attendance/punctuality, decision making, conflict resolution, truthfulness/honesty, positive attitude, judgment, and responsibility

VI. COURSE OUTCOMES:

 1. Organizing and describing data
Define and distinguish between categorical (qualitative) and numerical (quantitative) data.

Distinguish between data from an observational study and data from a designed experiment.
Organize data in frequency tables and contingency tables.
For a given set of data, construct appropriate graphical displays of data, such as a dotplot, histogram, stem-and-leaf diagram, a bar chart or a boxplot.
Describe the general shape of data, skewed left, skewed right, normal or other symmetric.
Calculate the measures of central tendency including mean and median.
Calculate the measures of dispersion including range, standard deviation, and interquartile range; explain the meaning of dispersion as it relates to a problem.
Use a statistical package on a graphics calculator or a computer to enter data and analyze results.
Measure the position of a data point by computing a percentile
2.   Finding the theoretical probability of an event
Use probability notation including the "or" condition and the "and" condition.
Determine whether or not two events are mutually exclusive.
Determine whether or not two events are independent.
Calculate the probability of compound events.
Calculate conditional probabilities; explain the meaning of conditional probabilities.
3.   Determining probabilities of a random variable
Distinguish between discrete and continuous random variables.
Find and interpret the mean and the standard deviation of a probability distribution.
Recognize Bernoulli populations.
Use the normal distribution to solve percent problems for normally distributed populations.
Use the normal distribution to solve probability problems for normally distributed random variables.
4.   Generating distributions for sample means
Calculate the mean for a distribution of sample means.
Calculate the standard deviation for a distribution of sample means.
Assess normality of a set of data.
Demonstrate the use of the Central Limit Theorem and explain its importance.
5.   Estimating the Mean
Construct confidence intervals for a population mean and a difference of two population means and interpret them in context.
Construct confidence intervals for a population proportion and a difference of two population proportions and interpret them in context.
6.   Using Hypothesis Tests
Perform hypothesis tests for a population mean and a difference of two population means and interpret results.
Perform a hypothesis test for a population proportion and a difference of two population proportions and interpret results.
Explain Type I error, Type II error, p-value, significance level and power of test in context.
Perform Chi-squared tests.
7.   Making predictions with linear data
Create a scatter plot and calculate a correlation coefficient for bivariate data.
Construct a linear regression equation, interpret the results, and test significance of slope.
Use a linear regression equation to make predictions about data.
Calculate the coefficient of determination for a linear regression equation and interpret results.

VII. COURSE OUTLINE:

1.   Introduction to Statistics
2.   Summarizing and Graphing Data
3.   Statistics for Describing, Exploring, and Comparing Data
4.   Probability
5.   Discrete Probability Distributions
6.   Normal Probability Distributions
7.   Estimates and Sample Sizes
8.   Hypothesis Testing

9.   Inferences from Two Samples
10. Correlation and Regression
11. Goodness-of-Fit and Contingency Tables

VIII. INSTRUCTIONAL METHODS:

1. Lecture/Discussion
2. In class and out of class assignments
3. Calculator and computer exercises
4. Whiteboard drills
5. Calculator demonstrations
6. Quizzes and Examinations
7. Individual help
8. Writing reflections and projects

IX. INSTRUCTIONAL AND RESOURCE MATERIALS:

1. Textbooks
2. Supplementary materials prepared by instructor
3. Computer tutorial programs
4. TI-84 graphing calculator
5. Whiteboard
6. Computer and projector

X. METHODS OF ASSESSMENT:

Methods of assessing the general course outcomes and the specific course competencies include student examinations and quizzes; assigned work; in/out of class activities using technology; attendance and student participation. Outcome #2 - Assessed through short and extended writing assignments explaining and interpret statistical concepts.
Outcome #4 - Assessed through class activities and assigned work to be completed using different techniques and technologies.
Outcome #5 - Assessed through activities requiring students to collect, evaluate, and analyze data of course materials.
Outcome #6 - Assessed through activities/projects using Internet, Microsoft Excel, scientific calculators, and other electronic devises.
Outcome #9 - Assessed through attendance and participation in group activities that require decision making and responsibility.

XI. ADA STATEMENT:
Under the Americans with Disabilities Act, Seward County Community College will make reasonable accommodations for students with documented disabilities. If you need support or assistance because of a disability, you may be eligible for academic accommodations. Students should identify themselves to the Dean of Students at 620-417-1106 or going to the Student Success Center in the Hobble Academic building, room 149 A.

Syllabus Reviewed: 05/30/2018 21:02:55