MASTER COURSE OUTLINE

Prepared By: Date: September 2017

COURSE TITLE

Introduction to Statistics

GENERAL COURSE INFORMATION

Dept.: MATH&	Course Num: 146	(Formerly: MATH 161)
CIP Code: 27.0501	Intent Code: 11	Program Code:
Credits: 5		
Total Contact Hrs Per Qtr.: 55		
Lecture Hrs: 55	Lab Hrs: 0	Other Hrs: 0

Distribution Designation: Math Science MS, Symbolic or Quantitative Reasoning SQR

COURSE DESCRIPTION (as it will appear in the catalog)

This course is an introduction to descriptive statistics, probability and its applications, statistical inference and hypothesis testing, predictive statistics and linear regression.

PREREQUISITES

Appropriate scores in the BBCC Mathematics Assessment or successful completion of MATH 098 or placement into MATH 099/107/146.

TEXTBOOK GUIDELINES

Appropriate college level text as chosen by the instructor

COURSE LEARNING OUTCOMES

Upon successful completion of the course, students should be able to demonstrate the following knowledge or skills:

1.   Determine appropriate methods to compute various probabilities
2.   Identify, analyze, and describe statistical distributions
3.   Use statistics to make population-level inferences
4.   Use linear regression to identify correlations and draw inferences

INSTITUTIONAL OUTCOMES

IO2 Quantitative Reasoning: Students will be able to reason mathematically.

COURSE CONTENT OUTLINE

1.   Introduction to Probability
         General probability concepts
         Probability distributions
         Bayes' Theorem
         Expected value of a distribution
2.   Descriptive Statistics
         Analysis of data using graphs, charts, box plots, whisker diagrams, etc.

Relation of distributions to probability concepts
Measures of central tendency
Measures of variation
Chebyshev's rule and the Normal Distribution
3. Advanced probability and statistical testing
Normal and Poisson distributions
Central Limit Theorem
Standard error of the mean
Confidence intervals
Hypothesis tests
4. Predictive statistics and Chi-Square and F-distributions
Linear Regression and Correlation
Hypothesis tests with standard deviations

DEPARTMENTAL GUIDELINES *(optional)*
In order to give the instructor the greatest flexibility in assigning a grade for the course, grades will be based on various instruments at the instructor's discretion. However, to maintain instructional integrity there must be four class exams or three class exams and a project. A final exam will be given if there are less than four exams or a project may be substituted for the final exam if there are four in-class exams. At least 60% of the grade will be based on quantifiable work (exams, homework, quizzes, etc.). The remaining portion of the grade may be based on quantifiable work, attendance, projects, journal work, etc., at the instructor's discretion.

The following is a compilation of acceptable grading instruments: in class exams and a final, attendance, homework or quizzes, research paper, modeling projects on the calculator or computer. Other projects or assignments may be assigned as deemed appropriate at the instructor's discretion.

PO5 should be assessed: Students will be able to solve problems by gathering, interpreting, combining and/or applying information from multiple sources.

_____   _____
DIVISION CHAIR APPROVAL   **DATE**