# 7/27/2020

# brcc keystone logo

Baton Rouge Community College

*Academic Affairs Master Syllabus*

Date Approved: 2 September 2020

Term and Year of Implementation: Fall 2020

**Course Title:** Basic Statistics I

**BRCC Course Rubric:** MATH 2303

**Previous Course Rubric**: MATH 202

**Lecture Hours per week-Lab Hours per week-Credit Hours**: 3-0-3

**Per semester: Lecture Hours-Lab Hours-Instructional Contact Hours**: 45-0-45

**Louisiana Common Course Number:** CBUS 2303

**CIP Code:** 27.0501

**Course Description:** Includes descriptive statistics: graphical, tabular, and computer data summary; measures of location and dispersion and their application; basic probability, rules, and relationships; Bayes theorem; discrete and continuous probability distributions (especially the binomial and normal); sampling and sampling distribution; inferential statistics; single population; estimation, and hypothesis testing for the mean, proportion, and associated errors; sample size determination; and p-values.

**Prerequisites:** Appropriate placement test score or MATH 1113 (or MATH 101) or MATH 1213 (or MATH 110) or MATH 1235 (or MATH 120) with a grade of C or better

**Co-requisites:** None

**Suggested Enrollment Cap:** 30

**Learning Outcomes.** *Upon successful completion of this course, the students will be able to:*

1. Understand and demonstrate Descriptive Statistics – overview, data collection, graphs, distributions, measures of central tendency and variation.

2. Understand and demonstrate Probability and Probability Distributions – probability theory, discrete probability distributions.

3. Understand and demonstrate Normal Probability Distributions – finding probabilities and values, sampling distributions and the central limit theorem.

4. Understand and demonstrate Confidence Intervals – for a mean, proportion, variance and standard deviation.

**General Education Learning Outcome(s):** This course supports the development of competency in the following area(s). Students will:

Represent mathematical information numerically, symbolically, and visually, using graphs and charts. (General Education Competency: Quantitative and Symbolic Reasoning)

**Assessment Measures.** Assessment of all learning outcomes will be measured using the following methods:

1. Instructor created exams and or homework

2. A comprehensive final exam

**Information to be included on the Instructor’s Course Syllabi:**

* ***Disability Statement*:** Baton Rouge Community College seeks to meet the needs of its students in many ways. See the Office of Disability Services to receive suggestions for disability statements that should be included in each syllabus.
* ***Grading:*** The College grading policy should be included in the course syllabus. Any special practices should also go here. This should include the instructor’s and/or the department’s policy for make-up work. For example in a speech course, “Speeches not given on due date will receive no grade higher than a sixty” or “Make-up work will not be accepted after the last day of class”.
* ***Attendance Policy*:** Include the overall attendance policy of the college. Instructors may want to add additional information in individual syllabi to meet the needs of their courses.
* ***General Policies*:** Instructors’ policy on the use of things such as beepers and cell phones and/or hand held programmable calculators should be covered in this section.
* ***Cheating and Plagiarism*:** This must be included in all syllabi and should include the penalties for incidents in a given class. Students should have a clear idea of what constitutes cheating in a given course.
* ***Safety Concerns:*** In some courses, this may be a major issue. For example, “No student will be allowed in the lab without safety glasses”. General statements such as, “Items that may be harmful to one’s self or others should not be brought to class”.
* ***Library/ Learning Resources:*** Since the development of the total person is part of our mission, assignments in the library and/or the Learning Resources Center should be included to assist students in enhancing skills and in using resources. Students should be encouraged to use the library for reading enjoyment as part of lifelong learning.

**Expanded Course Outline:**

I. The Nature of Probability and Statistics

A. Descriptive and Inferential Statistics

B. Variables and Types of Data

C. Data Collection and Sampling Techniques

D. Observational and Experimental Studies

II. Frequency Distributions and Graphs

A. Organizing Data

B. Histograms, Frequency Polygons, and Ogives

C. Other Types of Graphs

III. Data Description

A. Measures of Central Tendency

B. Measures of Variation

C. Measures of Position

D. Exploratory Data Analysis

IV. Counting Techniques

A. Tree Diagrams and the Multiplication Rule for Counting

B. Permutations and Combinations

V. Probability

A. Samples Spaces and Probability

B. Addition Rules for Probability

C. The Multiplication Rules and Conditional Probability

D. Probability and Counting Techniques

VI. Discrete Probability Distributions

A. Probability Distributions

B. Mean, Variance, and Expectation

C. Binomial Distribution

D. Other types of Distributions

VII. The Normal Distribution

A. Properties of the Normal Distribution

B. Standard Normal Distribution

C. Applications of the Normal Distribution

D. The Central Limit Theorem

VIII. Confidence Intervals and Sample Size

A. Confidence Intervals for the Means and Sample Size

B. Confidence Intervals and Sample Size for Proportions

C. Confidence Intervals for Variances and Standard Deviation