# 8/12/2020

# 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:** Finite Mathematics

**BRCC Course Rubric:** MATH 1313

**Previous Course Rubric**: MATH 200

**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:** CMAT 1313

**CIP Code:** 27.0101

**Course Description:** Designed for Liberal Arts majors who need a second math course to complete their General Education Math requirements or who need additional preparation in math prior to taking MATH 2103. Includes systems of linear equations, vectors, matrices, and matrix algebra; linear inequalities and linear programming; counting techniques; permutations and combinations; probability; and basic concepts in introduction to statistics.

**Prerequisites:** MATH 1113 (or MATH 101) or MATH 1213 (or MATH 110) with a grade of C or better, or placement by the department

**Co-requisites:** None

**Suggested Enrollment Cap:** 35

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

1. Solve a system of equations by using matrix reduction and inversion when possible.

2. Determine if the sum, difference, and/or product of matrices exist, and compute those that do exist.

3. Compute scalar multiples of a matrix.

4. Determine if the inverse of a matrix exists, and compute it if it does.

5. Solve systems of linear inequalities graphically.

6. Geometrically solve a linear programming problem in two dimensions.

7. Apply appropriately the concepts of permutation and combination.

8. Determine the theoretical probability of an event defined on a sample space.

9. Compute the expected value of a random variable.

10. Compute the odds for and against an event.

11. Compute conditional probabilities, and apply the product rule appropriately.

12. Draw a histogram, a frequency polygon, and cumulative frequency polygon for a given set of data.

13. Construct a cumulative frequency table for a given set of data.

14. Compute measures of central tendency: mean, median, and mode.

15. Compute measures of dispersion: the range and the standard deviation.

16. Compute the probability of X successes in Bernoulli trials.

17. Determine the areas under normal curves.

18. Approximate a binomial distribution with a normal distribution.

**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. Systems of Equations and Matrices

A. Systems of Two Linear Equations in Two Variables

B. Matrices and Linear Equations in Two Variables

C. Systems of Linear Equations and the Gauss-Jordan Method

D. Matrix Arithmetic

E. Inverse Matrices and Systems of Linear Equations

II. Linear Programming

A. Linear Inequalities

B. Two-Variable Linear Programming Problems

C. The Simplex Method for Standard Maximum Problems

D. Standard Minimum Problems and Duality

III. Probability

A. Sets, Counting, and Venn Diagrams

B. Permutations and Combinations

C. Probability Spaces

D. Conditional Probability and Independence

E. Random Variables and Distribution

IV. Statistics

A. Random Samples and Data Organization

B. Measures of Central Tendency

C. Measures of Variation

D. Normal Distributions and Binomial Approximation