

**SOUTHERN UNIVERSITY and A&M COLLEGE
DEPARTMENT OF MATHEMATICS**

**MATH 200
FINITE MATHEMATICS**

CATALOG DESCRIPTION

This course is designed for business and social science majors. The topics studied are systems of equations, matrices, and matrix algebra; linear inequalities and linear programming; counting techniques: permutations and combinations; probability; and an introduction to statistics.

INSTRUCTORS EMPHASIS

The instructors will emphasize the basic concepts and skills of the course content, especially matrices, linear programming, probability, and statistics. Additionally, the instructor will stress the problem solving techniques involving both the algebraic and graphic approach that will develop the skills necessary to apply the basic concepts in the study of mathematics such as calculus and elementary statistics. Incorporated into the activities and experiences will be the use of calculators and computers.

PREREQUISITES

A passing grade in Mathematics 135 or an equivalent course.

INTENDED AUDIENCE

This course is designed for students majoring in business and social sciences. Students should not take Math 200 and Math 203 concurrently.

TEXTBOOK

Margaret Lial, Thomas Hungerford and John Holcomb, **Mathematics with Applications** 9th Edition, Pearson Education, Inc. 2007

GENERAL GOALS

1. To introduce the basic concepts and skills that are necessary for the study of calculus for non-science majors and elementary statistics.
2. To provide activities and experiences that will enable students to utilize the basic concepts and skills previously learned to solve problems that depend both on the routine and non-routine applications of such skills.
3. To provide experiences that will enable students to develop the necessary problem solving skills for solving problems in business, life sciences, and social sciences.

LEARNING OUTCOMES

Upon exiting this course:

1. Students will be able to demonstrate the ability to solve systems of linear equations by using the substitution method, elimination method, and matrices.
2. Students will be able to demonstrate the ability to solve systems of linear inequalities by graphing.
3. Students will be able to demonstrate the ability to solve linear programming problems geometrically by sketching the feasible region, locating corner points, and then evaluating each corner point in the objective function.
4. Students will be able to demonstrate the ability to solve a variety of real world applications by constructing a linear programming model and conclude a solution.
5. Students will be able to demonstrate the ability to solve problems involving counting by using basic counting principles, permutations, and combinations.
6. Students will be able to demonstrate the ability to compute probabilities by applying formulas and principles of sets and counting.
7. Students will be able to demonstrate the ability to organize data, represent data in graphical form by constructing frequency distributions, drawing histograms and frequency polygons.
8. Students will be able to demonstrate the ability to analyze data by applying measures of central tendency and measures of dispersion formulas.
9. Students will be able to demonstrate the ability to find areas under a normal curve and find probabilities for random variables with normal distributions by interpreting graphs of normal distributions.
10. Students will be able to demonstrate the ability to find binomial probabilities by using the binomial probability formula.

ASSESSMENT MEASURES

1. Instructor created exams, quizzes, and homework
2. Final Exam

COURSE CONTENT

Chapter 6 Systems of Linear Equations and Matrices

6.1 Systems of Linear Equations

6.2 The Gauss-Jordan Method

6.3 Basic Matrix Operations

6.4 Matrix Products and Inverses

6.5 Applications of Matrices (Solving system using inverse matrix)

Chapter 7 Linear Programming

7.1 Graphing Linear Inequalities in Two Variables

7.2 Linear Programming: The Graphical Method

7.3 Applications of Linear Programming

Chapter 8 Sets and Probability

8.1 Sets

8.2 Applications of Venn diagram

8.3 Introduction to Probability

- 8.4 Basic Concepts of Probability
- 8.5 Conditional Probability and Independent Events

Chapter 10 Introduction to Statistics

- 10.1 Frequency Distribution and Measures of Central Tendency
- 10.2 Measures of Variation
- 10.3 Normal Distributions

Chapter 9 Counting Probability Distribution and Further Topics in Probability

- 9.1 Probability Distributions and Expected Value (optional)
- 9.2 The Multiplication Principle, Permutations, and Combinations
- 9.3 Applications of Counting
- 9.4 Binomial Probability

COURSE EXPECTATIONS AND STUDENT SUPPLEMENTS

1. EXPECTATIONS

Students are expected to have the skills prerequisite for this course. Students are encouraged to use the computers in the Math Lab or other resources to review the prerequisite skills for this course.

2. THE MATHEMATICS LABORATORY (MATH LAB)

The MATH LAB is located in 318 T.T. Allain Hall. The Laboratory will be open for general use at designated times. The Lab hours of operation will be announced to each class and posted.

Laboratory resources that are designed to help the student to achieve the objectives of the course include:

- a) individual tutoring
- b) computerized practice and tutoring
- c) internet access to online tutorials

3. OTHER RESOURCES that are designed to help the student achieve the course objectives include:

- a) *MYMATHLAB* includes a complete online version of the text, algorithmically generated exercises, all of the text supplements, and course and homework management tools.
- b) Personal tutoring is available free of charge at the Center for Student Success in 107 Stewart Hall. Contact Dr. Hamer Lawrence at 771-4312 for details.

4. CLASS ATTENDANCE

All students enrolled in Math 200 are expected to attend classes regularly and punctually. Excessive absences and tardiness will be noted. The student is responsible for keeping up with course work whether or not an absence is excused.

ACADEMIC DISHONESTY: Adhere to honesty and integrity in work submitted for credit in this course and adheres to SUBR's Code of Conduct. (Refer to current Catalog.)

DISABILITY STATEMENT

Students that are considered as having a disability are to provide the professor with a letter from the Department of Special Education stating the appropriate accommodations required

of this course. If you have a documented disability, then please discuss it with personnel at 771-3950 in Room 125 of Blanks Hall.

SUGGESTED OR REQUIRED READING: See professor.

GRADING POLICY: See professor.