CURRICULUM COMMITTEE  
January 18, 2002  
Effective Autumn Quarter 2001

SOUTHERN STATE COMMUNITY COLLEGE

I. COURSE TITLE: Finite Math

COURSE NUMBER: 124  
CATALOG PREFIX: MATH

II. PREREQUISITES: One of the following:
--- 3 years college preparatory math
--- Appropriate score on placement test
--- Math 118

III. CREDIT HOURS: 4  
LECTURE HOURS: 4
LABORATORY HOURS:
OBSERVATION HOURS:

IV. COURSE DESCRIPTION:

This course is designed for social science, business, computer and other
general education majors. Topics will include mathematical modeling, linear
programming, matrices, logic and introduction to probability and statistics. A
special emphasis is placed on mathematical applications and problem-solving.

V. ADOPTED TEXT (S):

*Finite Mathematics, 5th edition*
Rolf
Saunders College Publishing, 2002
ISBN 0-03-033446-2

VI. COURSE OBJECTIVES:

At the completion of this course the student will be able to:

1. Formulate and solve mathematical models and applications with linear
   functions.
2. Set up applied systems of equations and solve.
3. Apply systems to break-even points and equilibrium points.
4. Use Gauss-Jordan elimination for solving systems of equations.
5. Represent data in matrix form.
6. Interpret data that is in matrix form.
7. Perform operations with matrices and interpret the results.
8. Graph a linear inequality.
COURSE OBJECTIVES:  contd

9. Graph a system of linear inequalities.
10. Formulate linear programming problems.
11. Solve linear programming problems using graphing.
12. Find the optimum value of an applied problem when given a set of constraints.
13. Use set notation and terminology
14. Perform operations on sets.
15. Use Venn diagrams to represent sets.
16. Use Venn diagrams to solve survey problems.
17. Solve counting problems using fundamental counting principle, permutations, and combinations.
18. Identify the sample space of an event.
19. Find the probability of equally likely events.
20. Find the probability of compound events using sets.
21. Calculate conditional probability.
22. Prepare a frequency distribution
23. Find the mean, median, and mode of a set of data.
24. Find the range, variance, and standard deviation of a set of data.
25. Interpret a normal curve and represent it as a graph.
26. Solve applied problems using the normal distribution.
27. Represent statement and implications as symbols.
28. Construct truth tables for and test validity of logic statements.

VII. GRADING: Grading will follow policy in catalog.

VIII COURSE OUTLINE:

Chapter 1  Functions and Lines
1-1 Functions (Applications. Other material is review.)
1-2 Graphs and Lines (Applications. Other material is review.)
1-3 Mathematical Models and Applications of Linear Functions

Chapter 2  Linear Systems
2-1 Systems of Two Equations (Review)
2-2 Systems with Three Variables (Review)
2-3 Gauss-Jordan Method for General Systems of Equations
2-4 Matrix Operations
2-5 Multiplication of Matrices

Chapter 3  Linear Programming
3-1 Linear Inequalities in Two Variables
3-2 Solutions of Systems of Inequalities: A Geometric Picture
3-3 Linear Programming: A Geometrical Approach
COURSE OUTLINE  Cont'd.

Chapter 6  Sets and Counting
  6-1 Sets
  6-2 Counting Elements in a Subset Using a Venn Diagram
  6-3 Basic Counting Principles
  6-4 Permutations
  6-5 Combinations
  6-6 A Mixture of Counting Problems

Chapter 7  Probability
  7-1 Introduction to Probability
  7-2 Equally Likely Events
  7-3 Compound Events: Union, Intersection, and Complement
  7-4 Conditional Probability
  7-5*Independent Events

Chapter 8  Statistics
  8-1 Frequency Distributions
  8-2 Measures of Central Tendency
  8-3 Measures of Dispersion: Range, Variance, and Standard Deviation
  8-4 Random Variables and Probability Distributions of Discrete Random Variables
  8-5*Expected Value of a Random Variable
  8-6* Bernoulli Experiments and Binomial Distribution
  8-7 Normal Distribution

Chapter 10  Logic
  10-1 Statements
  10-2 Conditional Statements
  10-3 Equivalent Statements
  10-4 Valid Arguments

*Optional topics to be covered only if the other material is completed.

IX.  OTHER REQUIRED BOOKS AND MATERIALS:

A scientific calculator is required; one that is also statistics capable is recommended. Supplemental materials are available in the Learning Resource Center.

X.  EVALUATION:
XI. **SPECIFIC MANAGEMENT REQUIREMENTS:**

Assignments will be evaluated according to instructor directives.