

BROOME COMMUNITY COLLEGE
Binghamton, New York

COURSE TITLE ELEMENTARY FINITE MATH W/ALGEBRA MAT 117

DIVISION DEAN Julia Peacock

CLASS LECTURE HOURS 4 LAB HOURS 0 CREDIT HOURS 4

DEPT. CHAIRPERSON Carmelita R. Keyes DATE November 1996

PREREQUISITE: MAT 092 Foundations for College Mathematics II or equivalent.

Learning Objectives of Course:

The student should be able to:

1. Operate with signed numbers.
2. Solve equations and inequalities.
3. Write equations of lines.
4. Graph lines and linear inequalities.
5. Solve linear models of equilibrium.
6. Add, subtract and multiply matrices.
7. Determine if a matrix has an inverse, and find it if it does.
8. Solve systems of linear equations using matrix methods.
9. Solve systems of linear inequalities (linear programming).
10. Use set language to express probability problems and their solutions.
11. Compute combinations, permutations and use Pascal's Triangle.
12. Expand a binomial using the Binomial Formula.
13. Calculate conditional probabilities.
14. Calculate Binomial probabilities.
15. Calculate Normal probabilities.

(revised 3/97)

CATALOG COURSE DESCRIPTION:

Sets, probability, matrix algebra, graphing, inequalities, linear programming, permutations and combinations, linear models of equilibrium, systems of linear equations, solving equations and inequalities.

4 class hours; Prerequisite: MAT 092 Foundations for College Mathematics II or equivalent.

MAT 117 (revised 3/97)
Elementary Finite Math w/Algebra
Course Outline

Equations and inequalities

- Solving linear equations in one variable
- Operating with signed numbers
- Solving inequalities

Linear Equations and Matrices

- Writing Equations of Lines
- Coordinate Systems and Linear Equations
- Systems of Two Linear Equations (Equilibrium)
- Linear Systems in Several Unknowns
- Matrices and Linear Equations
- Matrix Computations
- Matrix Multiplication
- Inverses of Square Matrices

Linear Programming

- Linear Inequalities
- Convex Sets and Linear Inequalities
- Simplex Method
- Applications

Sets

- The Language of Sets
- Set operations
- Counting Elements in Sets

Combinatorics

- The Counting Principle
- Permutations
- Combinations
- Pascal's Triangle
- The Binomial Theorem

Elementary Probability

- Outcomes, Events and Sample Spaces
- Equiprobable Sample Spaces
- Non-Equiprobable Sample Spaces
- The Binomial Distribution and Probabilities
- Conditional Probability
- The Normal Distribution and Probabilities