

**IMPERIAL COMMUNITY COLLEGE DISTRICT
IMPERIAL VALLEY COLLEGE**

COURSE OUTLINE

DIVISION: Science, Mathematics, and Engineering

DATE: March 2004

COURSE TITLE: Finite Mathematics

COURSE NO.: Math 122

UNITS: 3

LEC HRS: 3

LAB HRS: 0

HRS. TBA: 0

If cross-referenced, please complete the following:

COURSE NO.(s): _____

COURSE TITLE: _____

I. COURSE/CATALOG DESCRIPTION:

Finite Mathematics satisfies the mathematics general education requirement and is transferable. Topics included in this course are: mathematics of finance, linear processes, combinatorics, probability, matrices, linear programming. Additional topics that may be selected by the instructor include: statistics, logic, game theory, Markov Chains.

II. A. PREREQUISITES, IF ANY:

Math 090 with a grade of "C" or better.

B. CO-REQUISITES, IF ANY:

None.

C. RECOMMENDED PREPARATION, IF ANY:

None.

III. GRADING CRITERIA:

 X Course must be taken on a "letter-grade" basis only.

 Course may be taken on a "credit" basis or for a letter grade.

 Course must be taken on a "credit" basis only.

IV. MEASURABLE COURSE OBJECTIVES AND MINIMUM STANDARDS FOR GRADE OF “C”:

1. Students will demonstrate an understanding of basic ideas of linear equations and inequalities and their graphs.
2. Students will demonstrate an understanding of systems of equations, methods of solution, and elementary matrix algebra.
3. Students will demonstrate an understanding of the basics of the linear programming problem and its graphical solution.
4. Students will demonstrate an understanding of set theory and the principles of combinatorics.
5. Students will demonstrate an understanding of the application of counting to compute probabilities.
6. Students will demonstrate an understanding of introductory descriptive statistics.
7. Students will demonstrate an ability to use the concepts of the mathematics of finance.
8. Students will demonstrate an ability to use the concepts taught in the additional topics.

V. CORE CONTENT TO BE COVERED IN ALL SECTIONS:

	<u>CORE CONTENT</u>	<u>APPROX % OF COURSE</u>
1.	Linear Equations and Graphing A. Coordinate system B. Slope-intercept form C. Linear inequalities and graphing D. Intersections of lines E. Supply and demand, F. Slope, point-slope form, perpendicular and parallel lines.	10%
2.	Matrices A. Solving systems of equations B. Gaussian elimination C. Matrices D. Elementary row operations E. Gauss-Jordan elimination F. Matrix arithmetic G. Matrix inverse and solving systems	10%
3.	Linear Programming A. Geometric approach B. Fundamental Theorem of Linear Programming C. Corner-Point Method.	5%
4.	Sets and Counting A. Set notation B. Inclusion-Exclusion Principle for counting C. Venn diagrams D. The Multiplication Principle E. Permutations F. Combinations G. Combining counting methods	15%
5.	Probability A. Intuitive definition of probability B. Probability experiments C. Sample spaces and events D. Unions E. Intersections F. Complements G. Probability distributions H. Inclusion-Exclusion Principle I. Odds, probability of an event , Conditional probability J. Complement Rule K. Independence L. Tree diagrams M. Bayes' Theorem.	15%
6.	Probability and Statistics A. Frequency distributions B. Relative frequency distributions C. Histograms D. Random variables E. Probability distributions F. Binomial trials G. Expected value H. Variance and standard deviation I. The normal distribution J. Normal approximation to the binomial distribution K. Introduction to statistical inference	15%
7.	Mathematics of Finance A. Simple and Compound Interest B. Future Value of an Annuity C. Present Value of an Annuity D. Amortization	10%
8.	Additional topics	20%

VI. METHOD OF EVALUATION TO DETERMINE IF OBJECTIVES HAVE BEEN MET BY STUDENTS: (Check all that apply.)

Essay	<u> X </u>	Class Activity	<u> X </u>	Written Assignments	<u> X </u>
Problem Solving Exercise	<u> X </u>	Final Exam	<u> X </u>	Oral Assignments	<u> X </u>
Skill Demonstration	<u> X </u>	Objective	<u> X </u>	Quizzes	<u> X </u>
Other	_____.				

INSTRUCTIONAL METHODOLOGY: (Check all that apply.)

Lecture	<u> X </u>	Discussion	<u> X </u>	Demonstration	<u> X </u>
Audio Visual	<u> X </u>	Group Activity	<u> X </u>	Lab Activity	<u> X </u>
Computer Assisted Instruction	<u> X </u>	Individual Assistance	<u> X </u>	Simulation/Case Study	<u> X </u>

Two (2) hours of independent work done out of class per each hour of lecture or class work, or hours lab, practicum, or the equivalent per unit.

VII. TEXTBOOK(S) AND SUPPLEMENT(S):

Goldstein et al., *Finite Mathematics & its Applications*. 6th edition.
Upper Saddle River, NJ: Prentice Hall, 1998.

Rolf, *Finite Mathematics*. 4th edition. New York: Saunders College Publishing, 1999

Lial, Greenwell, and Miller, *Finite Mathematics* 6th edition. New York: Addison Wesley, 1998.