

Course Code: MAT 141 (IAI M1 906)

Course Title: Finite Mathematics

Department: Mathematics

Effective Date: Summer 2026

PCS Code: 1.1 - Baccalaureate/Transfer

CIP Code: 27.0301

Repeatability: 0

Credit Hours

Catalog Notation: 4-0-4

Credit Hour Distribution:

Lecture: 4

Lab: 0

Clinical: 0

Total: 4

General Course Information

Catalog Description

Sets, combinatorial analysis, theory of probability, linear programming, vectors, matrices, and Markov chains. Not recommended for mathematics/science transfer students.

General Course Objectives

Students will learn the basics of set theory, combinatorial mathematics, probability, matrix algebra, and linear programming necessary for success in statistical and other quantitative work in business, agriculture, and social science disciplines. The students will further develop their skills in problem solving, quantitative reasoning, and the use of technology. Graphing calculator usage is integrated throughout the course.

Minimum Placement Levels

English	Reading	Math
None	None	Credit in MAT 124 with a grade of C or higher, or placement

Prerequisites

None

Methods of Evaluation

3-4 exams, 5-10 quizzes, homework, and a final exam.

Instructional Materials and Additional Supplies

Textbook *Finite Mathematics*, 8th Edition, by Howard L. Rolf, Brooks/Cole. ISBN 978-1-133-94577-2

Required: TI-84 Plus graphics calculator; \$85-\$120.

Course Content

General Learning Outcomes (GLOs)

- Reasoning and Inquiry: Students will demonstrate the ability to solve problems using deductive reasoning and logic, quantitative reasoning, or the scientific method.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Systems of Linear Equations	1. Solve systems of linear equations by the Gauss-Jordan method.	4	0	0
Matrices	1. Perform operations with matrices: addition, subtraction, multiplication, and finding inverses of non-singular matrices.	6	0	0
Leontief's Model	1. Interpret and use Leontief models.	2	0	0
Linear Programming	1. Solve linear programming problems both graphically and by using the simplex method.	11	0	0
Set Theory	1. Define sets and be able to use set operations.	2	0	0
Venn Diagrams	1. Draw and work with Venn diagrams.	1	0	0
Fundamental Counting Principle	1. Construct tree diagrams and apply the fundamental counting principle.	2	0	0
Permutations, Combinations, and Partitions	1. Set up and solve permutation and combination problems.	6	0	0
Probability	1. Solve conditional probability problems using tree diagrams (using Bayes' Theorem). 2. Use the binomial probability model to solve probability problems involving repetitive independent trials.	14	0	0
Markov Chains	1. Set up the transition matrix and work with Markov chains.	3	0	0
Reviews and Tests	1. Earn at least a 70 percent on each exam, including the final exam.	9	0	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
60	0	0