

**SOUTHEASTERN ILLINOIS COLLEGE
COURSE OUTLINE**

CRSE PREFIX	CRSE NO	COURSE TITLE	SEM CR	LECT HRS	LAB HRS	PCS/CIP CODE
MATH	142	FINITE MATHEMATICS	4	4	0	11-270301-04

CATALOG DESCRIPTION:

Counting techniques, set theory, probability theory, equations of lines, systems of linear equations, linear applications, matrices and matrix algebra, matrix applications, linear programming, and the Simplex method.

IAI NUMBER:

M1 906

PREREQUISITE:

(MATH 108 - Geometry and MATH 128 - College Algebra) with a grade of "C" or better

STUDENTS SERVED:

This course is intended for students seeking an AA/AS degree in areas such as business, economics, social science, education, and non-physical sciences. It meets the general education math requirement.

SPECIFIC OBJECTIVES:

1. Perform set operations.
2. Count the number of elements in a set using set operations, inclusion-exclusion property, complement rule, and Venn diagrams.
3. Understand and apply the counting properties to solve real-world applications.
4. Perform multiplication rule, permutations, and combinations.
5. Understand and apply the counting techniques to solve real-world applications.
6. Count the number of ordered partitions of a set.
7. Understand and apply the partition rule to solve real-world applications.
8. Calculate simple probabilities.
9. Calculate probabilities using set operations, inclusion-exclusion property, complement rule, DeMorgan's Law, and Venn diagrams.
10. Understand and apply the probability rules to solve real-world applications.
11. Calculate probabilities using combinations.
12. Calculate conditional probabilities.
13. Calculate Baye's theorem.
14. Understand and apply hypergeometric probability techniques, conditional probability rules, and Baye's theorem to solve real-world applications.
15. Perform independence tests to solve real-world problems.
16. Compute binomial trials.
17. Apply binomial rules to solve real-world applications.
18. Solve first degree algebraic equations.
19. Find the equation of a line given a point and a slope.
20. Find the equation of a line given two points.
21. Find the equation of a line given a point and a parallel line.
22. Find the equation of a line given a point and a perpendicular line.
23. Understand and apply linear techniques to solve business applications.
24. Perform matrix operations.
25. Understand and apply matrix operations to solve real-world applications.
26. Solve simultaneous equations by graphing.
27. Solve simultaneous equations by substitution.
28. Solve simultaneous equations by elimination.
29. Solve simultaneous equations by Gauss-Jordan elimination.
30. Solve simultaneous equations by matrix inverse.
31. Understand and apply systems of equations to solve real-world applications.
32. Solve Leontieff economic models using matrix operations.
33. Apply Leontieff economic models to real-world applications.
34. Solve linear programming problems by graphing methods.
35. Solve linear programming problems by Simplex methods.
36. Solve linear programming problems by Phase methods.
37. Apply linear programming models to solve real-world applications.
38. Analyze the solution to a linear programming model as it relates to a real-world situation.

PRIMARY METHOD OF INSTRUCTION:

Discussion/Lecture

MAJOR COURSE TOPICS:

UNIT 1: Set Operations and Counting Methods
Chapter 6: Sections 1 - 7

UNIT 2: Probability
Chapter 7: Sections 1 - 6
Chapter 8: Section 6

UNIT 3: Linear Equations, Matrices, and Their Applications
Chapter 1: Section 2 - 3
Handout: Matrix Operations
Chapter 2: Section 4 - 5

UNIT 4: Systems of Equations and Their Applications
Chapter 2: Sections 1 - 3
Chapter 2: Sections 6 - 7

UNIT 5: Linear Programming
Chapter 3: Sections 3 - 4
Chapter 4: Sections 1 - 2, 4 - 5, 7

TEXTBOOK:

Finite Mathematics (7th). Rolf. Thomson (Brooks/Cole), 2008.

WORKBOOKS AND OTHER MATERIALS:

A **graphing calculator** is required for this course. Preferred calculators are: **TI-82, TI-83, TI-83+, TI-84, or TI-84+**. If you use a different graphing calculator, it will be your responsibility to know how to use it. **Sharing calculators on exams will not be allowed.**

METHOD OF DETERMINING STUDENT GRADE:

There will be five unit tests during the semester worth 100 points each.

You currently have 10 participation points accumulated toward your grade. For each missed class - which is a missed opportunity to participate in the learning process, you will lose 2.5 points. Opportunities to regain these points will be available during the semester. However, at the end of the semester, a maximum of 10 participation points can be applied toward your final grade.

The final grade will be based upon the following:

- 450 - 500 points for an A
- 400 - 449 points for a B
- 350 - 399 points for a C
- 300 - 349 points for a D
- 0 - 299 points for an E

OTHER:

Students who require reasonable accommodation for a physical or learning disability should contact the disabilities coordinator at 618-252-5400, Ext. 2240.

Education Standards In Math 142									
Activity	Illinois Core Language Arts	Illinois Core Technology	Illinois Mathematics					Illinois Professional Teaching Standards	NCATE Standards
Homework			1A	6A3	8A1	8D1	8E8	1A	
Class Discussion			2A	6A4	8A2	8D2	8E9		
Exams			4D	6B1	8A3	8E1	8F2		
			4E	6B2	8A4	8E5	10B2		
			5A	6C1	8A5	8E6	10D		
			6A1	6C2	8B1	8E7	10H		
			6A2	7B1					

I reserve the right to amend this course outline during the semester due to unforeseen circumstances.

