



North Iowa Area Community College Course Outline

Please follow the included instructions when completing this form. Direct questions to Division Chair. After Course Outline is completed, please submit to Division Chair for review, who then submits to Administrative Assistant to the Vice President for Academic Affairs for review by the Curriculum and Academic Affairs Council (CAAC).

Prepared by:	Kathy Rogotzke
Date Approved by CAAC:	September 9, 2019
Course Title:	Finite Math
Course Number:	MAT-140
Equivalent Prior Course Numbers:	40-125; MATH-125
Academic Division/Department:	Mathematics

Credits – Semester Hours (s.h.):

Contact Hours As defined by the Iowa Department of Education in consultation with Division Chair/Registrar (see attached instructions).

Lecture:	45	1 s.h. = 15 contact hours
Lab:	0	1 s.h. = 30 contact hours
Clinical Practice:	0	1 s.h. = 45 contact hours
Work Experience:	0	1 s.h. = 60, 75, 90, or 105 contact hours
Total:	45	

Prerequisite(s):

MAT-121 College Algebra with a grade of C or higher; or an ALEKS score of at least 50

Corequisite(s):

None

Course Description:

This course provides a sampling of applied mathematical topics primarily in a business setting. Some topics covered include elementary functions, linear systems, matrices, linear programming, set theory, probability, and expected value.

Required Textbook(s) and Other Required Materials:

Finite Mathematics 9th Ed, Lial, Greenwell & Ritchey. Published by Pearson/Addison Wesley.

Purpose of Course Check one [X] in consultation with Division Chair.

☒	Arts and Sciences (General Education)
☐	Arts and Sciences
☐	Career and Technical (General Education)
☐	Career and Technical
☐	Developmental

If course is offered only in specific semesters, please explain below:

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Maximum number of weeks for which the course is offered:

16

[Do not edit the following section. Managed by Academic Affairs]

Is this a Core Competency Anchor Course? YES ☐ NO ☐

If "Yes," list Core Competency Student Learning Outcome Numbers being taught and assessed in this course (2.2, 3.1, etc.)

(Example) 2.2 [Press Tab to create new rows for each SLO]

Student Learning Outcomes (SLOs):

Upon successful completion of the course, a student will be able to:

1. Identify basic functions and use function notation.
2. Graph functions.
3. Write linear equations from two points or a point and the slope, and solve applications from linear functions.
4. Calculate and use relationships between cost functions, price-demand functions, revenue functions and profit functions.
5. Use a graphing calculator to help find intersections and maximums and minimums.
6. Set up and solve a system of linear equations by graphing and by substitution.
7. Set up and solve a system of linear equations by elimination and by Gauss-Jordan elimination.
8. Perform arithmetic of matrices, including multiplication and calculating and inverse.
9. Use inverse matrices to solve systems of linear equations.
10. Solve systems of linear inequalities.
11. Solve two-variable linear programming models by the graphical solution procedure.
12. Set up multiple-variable linear programming problem from a narrative.
13. Use the simplex method to solve standard maximum problems.
14. Use the dual method to solve standard minimum problems.
15. Set up and solve financial problems involving simple interest.
16. Set up and solve financial problems involving compound interest.
17. Find effective rate and nominal rates.
18. Calculate the future value of an annuity, given the periodic payment and interest details
19. Calculate the periodic payment of a personal loan given the principal and interest details
20. Write out a complete amortization table for a personal loan
21. Read and use set notation
22. Form new sets using unions, intersections, and complements of given sets.
23. Use Venn diagrams to illustrate operations and solve cardinality problems.
24. Learn and use the Fundamental Principle of Counting (multiplication rule).
25. Make simple trees to assess cardinalities
26. Use formulas for permutations and combinations
27. Understand relationships between experiments, trials, sample spaces, outcomes and events.
28. Distinguish between empirical and theoretical probabilities, and the assignment of a probability as a numerical measure of the likelihood of occurrence.
29. Calculate various probabilities, especially of "equally likely events", and including conditional probabilities and probabilities of independent events, and odds for and against events.
30. Calculate an expected value of a risk.