

**Northwest Arkansas Community College**  
Division of Science and Mathematics

**Discipline Code**

MATH

**Course Number**

2053

**Course Title**

Finite Mathematics

**Catalog Description**

A survey and applications course in mathematics designed for business, life science, and social science students. Topics include, but are not limited to: linear programming, financial mathematics, sets, probability, counting principles, measures of central tendency, measures of variation, and the normal distribution.

**Prerequisites**

A grade of "C" or better in College Algebra (MATH 1203 or 1204); a score of 24 – 28 on the math portion of the ACT; or a score of 46 – 99 on the College Algebra section of the COMPASS.

**Credit Hours**

3 credit hours

**Contact Hours**

3 contact hours

**Load Hours**

3 load hours

**Target Audience/Transferability**

This course is targeted primarily at students in business and life or social sciences. It is required of some AAS and AS degrees as well as a variety of four-year programs. It transfers as 3 credit hours of Finite Mathematics.

**Student Learning Outcomes**

Upon successful completion of Finite Mathematics, a student should be able to do the following. Other skills may also be required.

1. Set up and solve linear programming problems graphically.
2. Set up and solve standard and nonstandard linear programming problems using the Simplex Method.

3. Calculate future values, present values, interest rates, effective rates, interest amounts, numbers of years, and numbers of compounding periods using simple and compound interest formulas.
4. Calculate interest rates, interest amounts, principal amounts, payments, present values, and future values of ordinary annuities, and sinking funds.
5. Find the payment amount for an amortized loan, the portion of a loan payment that is interest and the portion that is principal; the remaining balance, the sum of all payments, and the total amount of interest paid.
6. Perform set operations; draw, interpret, and apply Venn diagrams.
7. Use basic counting techniques including the multiplication principle, permutations, and combinations to count and to find probabilities..
8. Compute conditional probabilities, probabilities of independent events, and binomial probabilities; calculate odds and expected values; and apply Bayes' Theorem.
9. Organize data; create frequency & probability distributions and histograms; and compute measures of central tendency and variation.
10. Find the percentage of area under a normal curve; find z-scores; and find probabilities using the standard normal curve.
11. Solve application problems using the skills listed in objectives 1 through 10.

### **Required Instructional Activities**

The content of the course should be taught with graphing calculators as an available tool when appropriate.

### **Required Forms of Assessment**

As part of our departmental outcomes assessment program, each instructor must include six departmental questions on his or her final exam. These questions will relate to the General Course Objectives and the Departmental Final Exam Review. These six questions should be evenly weighted on the final and should comprise at least 10% of each student's overall grade for the course. The questions will be graded using a departmental grading rubric utilizing a 10-point scale. Instructors are required to fill out a report for each of their classes listing the score of each individual student on each of the six departmental questions. *Please note that the only resource other than a graphing calculator allowed for use by students during the final exam will be a departmental formula sheet for survey of calculus. It is also a departmental policy that no TI-89 or TI-92 or comparable calculators be allowed for use during the final exam.*