

Course: MATH 2053 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.

Prerequisite:

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 an appropriate placement score (see the placement chart).

Credit/Contact/Load Hours:

3 credit hours, 3 contact hours, 3 load hours

Target Audience and Transfer:

This course is targeted at business, life science, and social science students. It is required for some AS and AAS degrees, as well as many baccalaureate degrees in business. It is designed to transfer as 3 credit hours of Finite Mathematics.

Course 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 Text:

Finite Mathematics and Calculus with Applications 10th Ed. Lial, Greenwell, and Ritchey Pearson, 2018

Required Content:

<u>Section</u>	<u>Topic</u>
3.1	Graphing Linear Inequalities
3.2	Solving Linear Programming Problems Graphically
3.3	Applications of Linear Programming
4.1	The Simplex Method: Slack Variables and the Pivot
4.2	Maximization Problems
4.4	Nonstandard Problems (optional: equality constraints)
5.1	Simple Interest and Compound Interest
5.2	Future Value of an Annuity (optional topic: annuity due)
5.3	Present Value of an Annuity; Amortization
7.1	Sets
7.2	Applications of Venn Diagrams

7.3	Introduction to Probability
7.4	Basic Concepts of Probability
7.5	Conditional Probability; Independent Events
7.6	Bayes' Theorem
8.1	The Multiplication Principle, Permutations
8.2	Combinations
8.3	Probability Applications of Counting Principles
8.4	Binomial Probability
8.5	Probability Distribution; Expected Value
9.1	Frequency Distributions; Measures of Central Tendency
9.2	Measures of Variation
9.3	The Normal Distribution

Note: A variety of application problems from each required topic should be assigned

Required Instructional Activity:

This course should be taught with the use of a graphing utility 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 finite math. It is also a departmental policy that no TI-89 or TI-92 or comparable calculators be allowed for use during the final exam.*

Instructor Resources:

Instructor's Edition
 Instructor's Resource Guide and Solutions Manual (downloadable through MML)
 Powerpoint Lecture Presentations and slides (available in MML)
 Videos on DVD-ROM
 Adjunct Support Center
 TestGen
 MathXL – online homework, tutorial, and assessment system
 MyMathLab – customizable text-specific online course

Student Resources:

Student's Solutions Manual
 Graphing Calculator and Excel Spreadsheet Manual
 MathXL
 MyMathLab
 Prentice-Hall Tutor Center (free with purchase of a new text; can also be purchased separately)