

Math 1025: Introduction to College Mathematics

Credit hours: 3 credits (3 hours per week)

Prerequisites: Placement in ACCUPLACER grid 2 or MATH 0099 with a grade of C or better.

Course Description

Covering the development of the real number system and the fundamental concepts of algebra and geometry, this course is suitable for prospective elementary school teachers or anyone desiring an introduction to college mathematics.

Course Objectives

1. Introduce students, particularly those on a non-STEM pathway, to set theory, algebra, trigonometry and finance
2. Develop problem solving strategies for students to apply to their course of study
3. Enhance critical thinking skills for non-STEM students

Learning Outcomes

1. Understand set theory terminology
2. Perform set operations and construct Venn diagrams with two or more sets
3. Investigate the common sets of numbers (natural, whole, integer, rational, irrational, and real)
4. Apply arithmetic operations to the common sets of numbers (see 3)
5. Utilize scientific notation
6. Solve algebraic equations and inequalities in one variable
7. Graph linear equations in two variables
8. Compute calculations with decimals and percentages
9. Calculate sales tax, percent increase/decrease, simple interest, compound interest, and future value
10. Explore basic definitions of geometry, triangle relationships, similar triangles, right triangles, the Pythagorean Theorem, and right triangle trigonometry
11. Solve application problems using any or all the above information

Course Topics

I. INTRODUCTION TO SETS

- A. Set notation
- B. Venn diagrams and subsets
- C. Set operations, Cartesian product and difference
- D. Survey and cardinal numbers

II. NUMBER THEORY AND REAL NUMBER SYSTEM

- A. Prime and composite numbers
- B. Integers and the order of operations
- C. The rational numbers
- D. The irrational numbers
- E. Real numbers and their properties
- F. Exponents and scientific notation

III. INTRODUCTION TO ALGEBRA

- A. Algebraic expressions and formulas
- B. Linear equations

- C. Problem solving
- D. Ratio and proportion

IV. ALGEBRA: GRAPHING LINEAR EQUATIONS

- A. Graphing and functions
- B. Linear functions and their graphs

V. PERCENT AND APPLICATIONS

- A. Percent, sales tax, and income tax
- B. Simple interest
- C. Compound interest

VI. GEOMETRY

- A. Points, lines, planes and angles
- B. Triangles
- C. Right triangle trigonometry