

Miami Dade Community College
MAT 0024
College Preparatory Algebra

Course Description: This course introduces students to the basic concepts of algebra. Students will simplify or perform operations on signed numbers, radicals, polynomials, and expressions containing exponents; factor polynomials; solve and graph linear equations and inequalities in one variable; graph linear equations in two variables; solve related applications.

Prerequisites: Satisfactory Completion of MAT 0002 or appropriate placement test score.

Credits: 4 (6 contact hours lecture/lab)

Course Competencies:

- Competency 1:** **The student will demonstrate knowledge of real numbers by:**
- a. Performing operations of addition, subtraction, multiplication, and division on real numbers.
 - b. Applying the order of operations agreement on real numbers.
 - c. Recognizing and applying the commutative, associative, identity, inverse, and distributive properties of real numbers.
 - d. Evaluating and interpreting absolute value
- Competency 2:** **The student will demonstrate knowledge of algebraic expressions by:**
- a. Evaluating algebraic expressions.
 - b. Simplifying expressions.
- Competency 3:** **The student will demonstrate knowledge of polynomial by:**
- a. Using properties of exponents to simplify exponential expressions.
 - b. Performing the operations of addition, subtraction, multiplication on polynomials.
 - c. Dividing a polynomial by a monomial.
- Competency 4:** **The student will demonstrate knowledge of scientific notation by:**
- a. Converting decimal notation to scientific notation and scientific notation to decimal notation.
 - b. Multiplying and dividing numbers that are in scientific notation.
- Competency 5:** **The student will demonstrate knowledge of linear equations by:**
- a. Solving linear equations in one variable.

- b. Solving linear equations with one variable that have no solution.
- c. Solving linear equations with one variable that have an infinite number of solutions.
- d. Solving applications involving linear equations including proportions.
- e. Solving literal equations.

Competency 6:

The student will demonstrate knowledge of linear inequalities by:

- a. Solving linear inequalities in one variable and graphing the solution set.
- b. Using interval notation to express intervals of real numbers

Competency 7:

The student will demonstrate knowledge of graphing by:

- a. Plotting ordered pairs in a Cartesian Coordinate plane.
- b. Identifying points and naming the quadrant or axis on which they lie.
- c. Graphing linear equations of two variables using table of values
- d. Graphing linear equations of two variables using the x-intercept and y-intercept
- e. Determining intercepts from the graph of a line
- f. Graphing horizontal and vertical lines.

Competency 8:

The student will demonstrate knowledge of factoring by:

- a. Factoring out the greatest common factor.
- b. Factoring by grouping.
- c. Factoring quadratic trinomials including perfect square trinomials
- d. Factoring special products.

Competency 9:

The student will demonstrate knowledge of rational expressions by:

- a. Simplifying rational expressions.

Competency 10:

The student will demonstrate knowledge of radical expressions by:

- a. Simplifying square roots of monomials.
- b. Adding, subtracting, and multiplying square roots of monomials

Competency 11:

The student will demonstrate knowledge of quadratic equations by:

- a. Solving quadratic equations by factoring