

**Miami Dade Community College**  
**MAT 0024**  
**College Preparatory Algebra**  
**COURSE COMPETENCIES**

**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; solve related applications.

**Prerequisites:** Satisfactory Completion of MAT 0002 or placement test scores.

**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 equation by:**
- a. Solving quadratic equations by factoring