

Miami Dade Community College
MAT 1033
Intermediate Algebra

COURSE COMPETENCIES

Course Description: Through this course the students develop the concepts of algebra. Students will solve linear, quadratic, rational, and radical equations; graph linear equations and inequalities in one variable; solve and graph systems of linear equations and inequalities in two variables; simplify rational expressions; simplify expressions containing rational exponents; simplify complex numbers; solve related applications.

Prerequisites: MAT 0024 or MAT 0020 with a grade of S or placement test score.

Credits: 3

COURSE COMPETENCIES:

- Competency 1:** **The Student will demonstrate knowledge of the slope of a Line by:**
- a. Determining the slope of a line given two points that lie on the line.
 - b. Determining the slope and intercept(s) of a line given its equation.
 - c. Determining the slope of a line from a graph.
 - d. Finding the slope of a line that is parallel to a given line.
 - e. Finding the slope of a line that is perpendicular to a given line.
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- Competency 2:** **The Student will demonstrate knowledge of linear equations and inequalities in two variables by:**
- a. Solving literal equations.
 - b. Finding an equation of a line given two points.
 - c. Finding an equation of a line given a point on the line and information about the slope of the line.
 - d. Writing an equation of a line in standard form.
 - e. Writing an equation of a line in slope-intercept form.
 - f. Graphing linear equations in two variables using the slope and y-intercept of the line.
 - g. Graphing linear inequalities in two variables.

- Competency 3:** **The Student will demonstrate knowledge of equations in two variables by:**
- a. Solving direct variation problems.
 - b. Solving inverse variation problems.
- Competency 4:** **The Student will demonstrate knowledge of systems of linear equations by:**
- a. Solving a system of linear equations in two variables using the addition method.
 - b. Solving a system of linear equations in two variables using the substitution method.
 - c. Solving a system of linear equations and inequalities in two variables by graphing.
 - d. Solving applications involving systems of linear equations.
- Competency 5:** **The Student will demonstrate knowledge of rational expressions and equations by:**
- a. Performing operations of addition, subtraction, multiplication and division on rational expressions.
 - b. Simplifying complex fractions.
 - c. Solving equations involving rational expressions including literal equations.
 - d. Dividing polynomials.
- Competency 6:** **The Student will demonstrate knowledge of radicals and rational exponents by:**
- a. Adding, subtracting, multiplying, and dividing expressions involving radicals
 - b. Simplifying expressions containing rational exponents.
 - c. Applying the properties of exponents to expressions with rational exponents
 - d. Solving radical equations
- Competency 7:** **The Student will demonstrate knowledge of complex numbers by:**
- a. Knowing the meaning of i .
 - b. Writing the square root of a negative number in terms of i .
- Competency 8:** **The Student will demonstrate knowledge of quadratic equations by:**

- a. Solving quadratic equations by factoring.
- b. Solving quadratic equations by the square root method.
- c. Solving quadratic equations by the quadratic formula.
- d. Solving quadratic equations by completing the square.