Miami Dade Community College
MAT 1033
Intermediate Algebra

Course Description: Through this course students develop various concepts of Algebra. Students will solve linear, quadratic, rational, and radical equations; graph linear equations and inequalities in one variable; graph linear equations in two variables; 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 appropriate 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.

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.