

Miami-Dade Community College
MAC 1105
COLLEGE ALGEBRA

Course Description This course introduces the student to the concept of functions and their graphs. Students will graph linear, quadratic, rational, exponential, logarithmic, radical, power, and absolute value functions and transformations; perform operations on and compositions of functions; find the inverse of a function; apply the laws of logarithms to simplify expressions and solve equations; graph non-linear inequalities; solve related applications and modeling problems.

Pre-requisite: MAT 1033 with a grade of C or better or equivalent (3 hrs. lecture)

Credits: 3

Course Competencies:

Competency 1: The student will demonstrate knowledge of absolute value equations and inequalities by

- a. Solving absolute value equations
- b. Solving absolute value inequalities

Competency 2: The student will demonstrate knowledge of systems of linear equations by:

- a. Solving systems of linear equations in three variables (with or without technology)
- b. Solving applications involving systems of linear equations

Competency 3: The student will demonstrate knowledge of complex numbers by:

- a. Simplifying radicals that represent imaginary numbers
- b. Adding, subtracting, multiplying, and dividing complex numbers.

Competency 4: The student will demonstrate knowledge of quadratic equations and functions by:

- a. Using the discriminant to identify the types of solutions for quadratic equations.
- b. Graphing quadratic function and identifying the vertex, x-intercept, y-intercept and the axis of symmetry of the graph.
- c. Finding the maximum or minimum value of a quadratic function.
- d. Finding the maximum or minimum value of a quadratic function in quadratic models.
- e. Solving equations that are quadratic in form.