

Common Course Outline for: MATH 0603 Pre-college Math 3

A. Course Description

1. Number of credits: 3
2. Lecture hours per week: 3 hours
Lab hours per week: None
3. Prerequisites: MATH 0602
4. Co-requisite: None
5. MnTC Goals: None

MATH 0603 is a continuation of pre-college mathematics from MATH 0602 for students who have yet to master the learning objectives required for their intended sequence of math courses. Topics are the same as those listed for MATH 0601 and MATH 0602 which include linear equations and inequalities, graphs of linear equations, exponents and polynomials, linear, quadratic, exponential and logarithmic functions, problem solving and systems of equations, rational and radical expressions and equations. Eligibility for a subsequent mathematics course is determined by a specific level of mastery of the topics. MATH 0603 serves as a preparation for MATH 0630, 0700, 0990, 1020, 1050, 1080 or 1100 based on the number of learning objectives mastered.

B. Date last reviewed: (January 2018)

C. Outline of Major Content Areas

1. Solving Linear Equations and Inequalities
2. Graphing Linear Equations
3. Exponents and Polynomials: Operations and Factoring
4. Quadratic Expressions and Equations
5. Functions: Linear and Quadratic
6. Functions: Exponential and Logarithmic
7. Problem Solving and Systems of Linear Equations
8. Rational Expressions and Equations
9. Radical Expressions and Equations

D. Course Learning Outcomes

1. Solve linear equations and inequalities in one variable.
2. Convert verbal expressions into algebraic form; solve applied problems.
3. Determine slope of a line from its graph, equation, or two points on the line.
4. Graph linear equations given a point and the slope.
5. Solve systems of linear equations.
6. Apply the rules for exponents.
7. Add, subtract, multiply, and divide polynomials.
8. Factor polynomials.
9. Solve rational equations.
10. Solve a formula for a specific variable.
11. Simplify complex rational expressions.
12. Determine whether a relation is a function, identify its domain and range, and determine if it is one-to-one.
13. Find the inverse of a relation or function; find the composition of two functions.
14. Find equations of lines and identify parallel and perpendicular lines.
15. Simplify expressions involving radicals and rational exponents.
16. Perform basic arithmetic operations with complex numbers.
17. Solve quadratic equations using factoring, the principle of square roots, completing the square, and the quadratic formula, and use the discriminant to determine the nature of the roots (real, complex) of a quadratic equation.
18. Graph equations of the type $y = a(x-h)^2 + k$, finding the vertex, the line of symmetry, and the maximum or minimum value.
19. Graph exponential and logarithmic functions; solve exponential and logarithmic equations; apply the properties of logarithms and convert between logarithmic and exponential functions.
20. Solve applied problems involving the following mathematical concepts: rational equations, proportion, variation, functions, linear functions, radical equations, quadratic equations, exponential functions, and logarithmic functions.

E. Methods for Assessing Student Learning

MATH 0603 uses P/NC with A-F grading option upon request by student.

Each instructor will design an evaluation system based on some combination of the following:

1. Continuous increase in number of objectives mastered.
2. Sufficient time spent working on learning objectives in class and outside of class.
3. Attendance
4. Proctored Assessments.
5. Alternate participation requirements.

F. Special Information

1. Students who successfully demonstrate mastery of the learning objectives for MATH 0630 and 0990, or 1020, 1050 and 1080 in MATH 0601, 0602 or 0603 will have their eligibility changed as appropriate.
2. Students who successfully demonstrate mastery of the learning objectives for Intermediate Algebra in MATH 0601 or MATH 0602 or MATH 0603 will be given a grade of P on their transcript for MATH 0700, and be eligible for MATH 1100 (College Algebra).
3. Reliable internet access from off campus is highly recommended. Content, learning aids and testing are available online.
4. The course will require a commitment of at least 6 hours per week including 3 hours in class and 3 hours homework.