Sinclair Community College
444 E. Third St.
Dayton, OH 45402

Master Syllabus

MAT 1470 - College Algebra

Division: Science, Mathematics and Engineering

Department: Mathematics

Credit Hour Total: 4.0 **Lecture Hrs:** 4.0

Prerequisite(s): MAT 1365 OR MAT 1370

Other Prerequisite(s): AND Other with a grade of C or better or satisfactory score on math placement test

Date Revised: March 2015

Course Description:

Polynomial, radical, rational, exponential and logarithmic functions and their graphs; roots of polynomial functions, rational and polynomial inequalities; conic sections; systems of linear and nonlinear equations; matrices; sequences and series; and applications. A scientific (nongraphing) calculator is required in most sections; however, some sections will require the use of a graphing calculator. Traditional testing (proctored or in Testing Center) is used in all online sections.

General Education Outcomes:

- Critical Thinking/Problem Solving

Course Outcomes:

Graphs of Functions
Demonstrate the ability to graph polynomial, exponential and logarithmic functions.

Assessment Method: Locally developed exams
Performance Criteria: Passing grade with a score of 70% or better.

Derive Equations
Demonstrate the ability to derive equations of conic sections from geometric properties.

Assessment Method: Locally developed exams
Performance Criteria: Passing grade with a score of 70% or better.

Logarithmic and Exponential Functions
Demonstrate the ability to solve application problems using exponential and logarithmic properties.

Assessment Method: Locally developed exams
Performance Criteria: Passing grade with a score of 70% or better.

Matrix Operations
Demonstrate the ability to perform matrix operations.

Assessment Method: Locally developed exams
Performance Criteria: Passing grade with a score of 70% or better.

Outline:

Represent functions verbally, numerically, graphically and algebraically, including linear, quadratic, polynomial, rational, root/radical/power, exponential, logarithmic and piecewise-defined functions.Determine whether an algebraic relation or given graph represents a function.Perform transformations of functions.Algebra of functions and composition of functions.Analyze the algebraic structure and graph of a function to determine its properties.Find inverses of functions and understand the relationship of the graph of a function to that of its inverse.Use the Remainder and Factor Theorems for polynomial functions.Use functions to model a variety of real-world applications.Explain the relationship among the solutions of an equation, the zeros of the corresponding function, and the coordinates of the x-intercepts of the graph of that function.Determine algebraically and graphically whether a graph exhibits symmetry.Solve a variety of equations, including polynomial, rational, exponential, and logarithmic.Solve a system of linear equations and their applications.Solve polynomial and rational inequalities graphically and algebraically.Identify and express the conics in standard rectangular form, graph the conics, and solve applied problems.Perform operations with matrices, and use matrices to solve systems of linear equations.Use the Rational Zeros Theorem and the Fundamental Theorem of Algebra to find the zeros of and factor a polynomial.Solve a nonlinear system of equations graphically and algebraically, including systems arising in application problems.Express general terms of various sequences, and evaluate the sum of arithmetic and geometric series.