

Columbus State Community College
Mathematics Department Syllabus

Course and Number: MATH 1148 – College Algebra **Credits:** 4 **Class Hours Per Week:** 4
Prerequisites: Math 1075 with a C or higher, Math 1099 (completion of Math 1075 module), or by placement

COURSE DESCRIPTION: College Algebra is a course in the study of the elementary functions. The concept of function is developed from definition and notation through an analysis of the elementary functions: linear, quadratic, absolute value, reciprocal, square root, polynomial, rational, exponential, and logarithmic, as well as piecewise, composite and inverse functions. The analysis includes function behavior with an introduction to the concepts of continuity and limits, extrema, and zeros, as well as corresponding graphical characteristics. The topic of average rate of change of a function is included. Analytic techniques include the Rational Zeros Theorem, Intermediate Value Theorem, and Conjugate Pairs Theorem, as well as factoring and transformations. The course includes solving systems of non-linear equations and partial fraction decomposition and concludes with an introduction to arithmetic and geometric sequences and partial sums. This course emphasizes the conceptual framework of the elementary functions and the quantitative reasoning to apply them. This course meets the TMM001 ODHE guidelines and serves as preparation for calculus.

COURSE GOALS: To present precalculus concepts within the first of a two-course sequence needed by students preparing to enter the regular calculus sequence.

INSTITUTIONAL LEARNING GOALS: Critical Thinking and Quantitative Skills

TEXTBOOK, MANUALS, REFERENCES, AND OTHER REQUIRED MATERIALS:

- *Algebra and Trigonometry, Enhanced with Graphing Utilities*, 8th Ed, Sullivan/Sullivan, Prentice Hall
- My Math Lab/Course Compass – (included with purchase of a new text)
- The Texas Instruments' TI-84 (regular, Plus, Silver, etc.) graphing calculator is recommended.
 - *Calculator Alternatives:* Some students may prefer to use a CASIO-FX-9750GII, TI- Nspire (non-CAS version), or a TI-83. These options are similar to the TI-84 and are approved for use during proctored assessments.
 - Other graphing calculators may be permitted. If you own a different calculator, please check with your current instructor to see if your calculator will be allowed during their proctored assessments.
 - The TI-89, TI-92, TI-Nspire CAS, or other Computer Algebra System (CAS) calculators, are never allowed during proctored assessments.

UNITS OF INSTRUCTION:

- Functions: Graphs and Analysis (Chapters 2.1, 3.2-3.5)
- Quadratic Functions, Mathematical Models (Chapter 4.3-4.4, 3.6)
- Power, Polynomial and Rational Functions (Chapters R.6, 5.1-5.7)
- Function Operations (Chapters 3.1, 6.1-6.2)
- Exponential and Logarithmic Functions (Chapters 6.3-6.8)
- Systems of Equations & Partial Fraction Decomposition (Chapters 12.1, 12.5, 12.6)
- Sequences (Chapters 13.1-13.3)

GENERAL INSTRUCTIONAL METHODS: Instructional methods may include face-to-face or video lectures or demonstration, face-to-face or virtual discussion, individual or group activities including the use of visual aids, graphing calculators, computers and/or other technologies. Students may be expected to participate in these activities during class and/or outside of class. Instructors may require class participation, collaborative learning, and peer review.

STANDARDS AND METHODS FOR EVALUATION: The departmental final exam will be 25% of the course grade. The remaining 75% of the course grade will be determined by the instructor. No more than 25% of the course grade may be determined using non-proctored assessments.

GRADING SCALE:

Letter grades for the course will be awarded using a 90% - 80% - 70% - 60% scale.
Grades will not be curved, skewed, or otherwise inflated.