Course and Number: MATH 1148 – College Algebra  Credits: 4  Class Hours Per Week: 4

Prerequisites: MATH 1075 with a “C” or better, or placement by MATH 1099 or COMPASS or ACT test

COURSE DESCRIPTION: This course is a continuation of the study of functions. The concept of transformations is used to graph and analyze functions including quadratic, higher degree polynomial, power, piecewise, rational, exponential, and logarithmic functions. The function concept is applied to solving equations, inequalities, and applications regarding these types of functions. Factor and remainder theorems and roots of polynomial functions are included. The concept of functions is extended to include composition of functions and inverse functions. Systems of linear and non-linear equations are solved using algebraic and graphical methods. Trigonometric functions of right angles are defined and used in problem solving. This course meets the general education requirement for the AA degree.

SPECIAL COURSE REQUIREMENTS: None

COURSE GOALS: To present precalculus concepts as part of a two course sequence (MATH 1148, MATH 1149) needed by students preparing to enter the regular calculus sequence. The course will also satisfy four hours of the liberal arts requirement of the AA degree. Emphasis is on mastering concepts and skills. Theorems and definitions are included, where appropriate, for mathematical accuracy and precision.

GENERAL EDUCATION GOALS: This course addresses the following Columbus State general education goals:
• Critical Thinking
• Quantitative Literacy

TEXTBOOK, MANUALS, REFERENCES, AND OTHER REQUIRED MATERIALS:
• My Math Lab/Course Compass – (included with purchase of a new text).
• A graphing calculator is REQUIRED. The Texas Instruments' TI-84 (regular, Plus, Silver, etc.) graphing calculator is strongly recommended and approved for use during proctored assessments.
  • 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, 5.1-5.6)
- Function Operations (Chapters 6.1-6.2)
- Exponential and Logarithmic Functions (Chapters 6.3-6.8)
- Systems of Equations (Chapters 12.1, 12.6)
- Right Triangle Trigonometry (Chapters 7.1-7.3)

GENERAL INSTRUCTIONAL METHODS: Lecture, discussion, demonstration, exploration and discovery exercises with the use of visual aids, graphing calculators, and/or computer resources.

STANDARDS AND METHODS FOR EVALUATION:
Final Exam = 25% of course grade (final exam is 100% departmental). 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 the following scale:

- $\geq 90\%$ - A
- 80-89\% - B
- 70-79\% - C
- 60-69\% - D
- $< 60\%$ - E

Grades will not be curved, skewed, or otherwise inflated.