



Course Description:

MATH-021 - Precalculus Algebra

Units: 3

This course is designed to prepare the student for the level of algebra required in calculus. Study will be made of linear and quadratic equations and inequalities, functions and graphs, polynomial and rational functions, exponential and logarithmic functions, and systems of equations and inequalities.

Lecture Hours: 3 Lab Hours: None Repeatable: No Grading: L

Credit by Exam: Yes

Prerequisite: MATH 013 or ELECT 122 AND MATH 014, BOTH WITH C OR BETTER OR EQUIVALENT

CAN: MATH 10

Advisory Level: Read: 2 Write: 2 Math: None

Transfer Status: CSU/UC Degree Applicable: AA/AS

CSU GE: B4 District GE: B4 IGETC: 2A

Learning Outcomes:

1. Apply precalculus algebraic concepts in solving problems.
2. Use equations and inequalities of the first and second degree, including those involving complex numbers.
3. Construct functions and their graphs, including one-to-one, composite, inverse, and rational functions.
4. Solve linear and quadratic equations and inequalities both algebraically and graphically.
5. Analyze polynomial functions of higher order, and apply to them the Remainder Theorem, Factor Theorem, and Fundamental Theorem of Algebra and its corollaries to study their rational, irrational, and complex roots.
6. Analyze rational functions, and decompose rational expressions using the method of partial fractions.
7. Analyze exponential and logarithmic functions and evaluate exponential and logarithmic expressions.
8. Use a graphing calculator as an aide in studying precalculus concepts.
9. Solve linear systems of equations and inequalities and apply to them determinants, Cramer's Rule, the Gauss-Jordan Elimination Process, and linear programming methods.
10. Solve nonlinear systems and inequalities.
11. Apply deductive and inductive reasoning to further develop critical thinking and abstract reasoning skills, observe and analyze givens, discover patterns, recognize the useful quantitative features of a problem, apply an appropriate method for solving the problem using a sequence of steps in a logical way, express these steps in the symbolic language of mathematics and recognize a completed solution.