

COURSE OUTLINE

MATH-070 Intermediate Algebra 3 Semester Hours

HOWARD COMMUNITY COLLEGE

Course Description

The emphasis of this course is on using algebraic and graphical techniques to model and solve real world application problems. The use of a graphing calculator is required. Topics will include linear, quadratic, exponential, and logarithmic functions, rational exponent equations (both linear and quadratic), radical equations, linear and nonlinear systems, use of the discriminant, and inverse functions. Familiarity with rational expressions and equations is assumed.

Prerequisite: MATH-065 or MATH-067 or appropriate score on math placement test. (4 hours weekly)

Overall Course Objectives

Upon successful completion of this course, the student will be able to:

1. Use problem solving strategies to explore patterns numerically, graphically, and algebraically.
2. Write the equation of a linear function from a graph or a verbal problem.
3. Model applications with linear inequalities.
4. Solve absolute value equations and inequalities.
5. Model applications with exponential functions.
6. Solve radical equations and equations with rational exponents algebraically and graphically.
7. Use the discriminant to determine the number and type of roots for a quadratic function.
8. Use the concept of inverse function to explore logarithmic functions.

Major Topics

Functions and Modeling

Tables, Graphs and Equations

Introduction to Functions

Linear Functions

Slope

Graphs of Linear Functions

Equations of Linear Functions

Systems of Linear Equations

Linear Functions Extended

Linear Inequalities

Compound Inequalities

Absolute Value Functions-Graphically

Absolute Value Functions-Analytically

Exponents

Reciprocal of Integer Exponents

Solving Power Equations

Rational Exponents

Exponential Functions

Exponential Functions from a Numerical Perspective

Graphing Exponential Functions

Quadratic Functions

Graphs of Quadratic Functions

Solving Quadratic Equations

Factors, Solutions and the Discriminant

Nonlinear Systems and Inequalities

Functions

Function and Notation

Inverse Functions

Logarithmic Functions and Equations

Logarithmic Functions

Exponential and Logarithmic Equations

Course Requirements

Required Text: An Intermediate Course in Algebra: An Interactive Approach, 1st edition, by Warr, Curtis and Slingerland, Harcourt Brace, Publishing.