

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.

Prerequisite: 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. Solve rational equations.
4. Model applications with linear inequalities.
5. Solve absolute value equations and inequalities.
6. Model applications with exponential functions.
7. Solve radical equations and equations with rational exponents algebraically and graphically.
8. Use the discriminant to determine the number and type of roots for a quadratic function.
9. 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

Rational Equations

Restrictions

Least Common Denominator

Solving Rational 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

Grading/Exams: Grading procedures will be determined by the individual faculty member within the guidelines of the Mathematics Division and will include several unit exams, graphing activities and a comprehensive departmental final exam.

Technology requirements: Graphing calculator (TI-84 recommended, TI-89 not permitted)

Other Course Information

Credits awarded for the completion of this course do not fulfill degree requirements in any degree or certificate program.