

Hawai'i Community College

Course Syllabus

COURSE TITLE: **Intermediate Algebra**

COURSE IDENTIFICATION: **Mathematics 27**

CREDIT HOURS: **3**

PREREQUISITES: **“C” or better in Math 25X or Math 26,
or placement in Math 27.**

DIVISION: **Math & Natural Sciences**

DEPARTMENT: **Mathematics**

INSTRUCTOR: **James A. Schumaker**

OFFICE LOCATION: **EHK-225**

OFFICE PHONE: **(808) 974-7528**

OFFICE HOURS: **[see current semester information](#)**

DATE: **August 2009**

COURSE DESCRIPTION:

Reviews real numbers, polynomials, algebraic functions, first-degree equations and inequalities. Studies quadratic equations, exponents, radicals and rational expressions and equations, complex numbers, graphing equations and inequalities in two variables, systems of equations in two and three variable, applications of first and second degree equations and an introduction to functions.

Prerequisites: C or better in Math 25 or Math 26, or placement in Math 27.

COURSE OBJECTIVES:

To review the basic operations of sets, especially the set of real numbers.

To acquire proficiency in solving linear equations and linear inequalities, including their applications.

To develop an understanding of (integer) exponents, their basic properties, and the operations of polynomials, including solving polynomial equations (up through the 3rd degree).

To develop an understanding of rational expressions, their basic operations, and of solving (basic) rational equations.

To develop an understanding of rational exponents, radical expressions, their basic operations, complex numbers, and solving radical equations.

To acquire proficiency in the graphing of linear equations (including an understanding of their properties & applications) and linear inequalities.

To acquire proficiency in solving quadratic equations, and an initial understanding of their applications.

To acquire proficiency in solving systems of linear equations.

To develop an understanding of functions, especially linear, quadratic, and polynomial functions.

In addition, as in most mathematical courses, students will be presented with the challenge of utilizing critical thinking along with development of communicating their analyses in a neat and ordered fashion.

INSTRUCTIONAL MATERIALS:

Textbook:



INTERMEDIATE ALGEBRA for College Students

by Robert Blitzer – Fifth Edition

Calculators:

A scientific calculator is required.

Recommended:

Graph paper or engineering pad;

A loose-leaf notebook for storing HomeWork, exams, quizzes, and notes.

MATHEMATICS 27 / INTERMEDIATE ALGEBRA

Course Outline

UNIT 1. Algebra, Mathematical Models & Problem Solving

Algebraic Expressions and Real Numbers; Operations with Real Numbers and Simplifying Algebraic Expressions; Graphing Equations; Solving Linear Equations; Problem Solving and Using Formulas; Properties of Integral Exponents; Scientific Notation.

UNIT 2. Functions & Linear Functions

Introduction to Functions; Algebra of Functions; Linear Functions & Slope; Point-Slope Form of the Equation for a Line.

UNIT 3. Systems of Linear Equations

Systems of Linear Equations in Two Variables; Problem Solving and Business Applications; Systems of Linear Equations in Three Variables.

UNIT 4. Inequalities & Problem Solving

Linear Equalities; Compound Inequalities; Equations with Absolute Value; Linear Inequalities in Two Variables.

UNIT 5. Polynomial Expressions, Functions & Factoring

Intro to Polynomials & Polynomial Functions; Multiplication of Polynomials; Greatest Common Factors; Factoring Trinomials; Factoring Special Forms; General Factoring Strategy; Polynomial Equations and Their Applications.

UNIT 6. Rational Expressions, Functions & Equations

Rational Expressions & Functions; Multiplying & Dividing; Compound Rational Expressions; Division of Polynomials; Rational Equations; Formulas & Applications with Rational Equations; Modeling Using Variation.

UNIT 7. Radical Expressions, Functions & Rational Exponents

Radical Expressions & Functions; Operations on Radicals; Rational Exponents; Multiplying & Simplifying Radical Expressions; Adding, Subtracting & Dividing Radical Expressions; Multiplying with More Than One Term & Rationalizing Denominators; Radical Equations; Complex Numbers.

UNIT 8. Quadratic Equations & Functions

Square Root Property; Quadratic Formula; Quadratic Functions; Equations in Quadratic Form; Polynomial Inequalities.