Course Syllabus

COURSE TITLE: Elementary Algebra I

COURSE IDENTIFICATION: Mathematics 24

CREDIT HOURS: 3

PREREQUISITES: “C” or better in Math 22 or placement in Math 24

COURSE LEARNING OUTCOMES:
Upon successful completion of Math 24, a student will be able to...

● Demonstrate the mathematical skills needed to successfully complete Math 25 and/or other courses with a Math 24 prerequisite.
● Model and solve level-appropriate real world applications using algebraic methods.

DIVISION: Natural Science & Mathematics
DEPARTMENT: Mathematics
INSTRUCTOR: James A. Schumaker

OFFICE LOCATION: EKH-225
OFFICE PHONE: (808) 934-2626
OFFICE HOURS: see current semester information

DATE: August 2015
COURSE DESCRIPTION:

Represents the first course in a two-course sequence covering elementary algebra topics. Topics include operations with Real numbers, linear equations and inequalities (in one variable), graphing, linear systems, and applications. (3 lec hrs.)

Prerequisites: “C” or better in Math 22 or placement in Math 24

COURSE OBJECTIVES:

To become familiar with various Real number sets, including the Integers and Rational numbers.

To acquire skill in solving first degree equations (and inequalities) in one variable.

To acquire a basic understanding of linear equations (and inequalities) in two variables, including their graphs.

To solve a system of linear equations in two variables by various methods.

To develop a basic ability to solve applications using the algebraic techniques covered throughout the course.

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

INSTRUCTIONAL MATERIALS:


Calculators: A basic (inexpensive) calculator, although a scientific calculator will be noticeably more advantageous.

Recommended: Student Solutions Manual
Graph paper or engineering pad;
A loose-leaf notebook for storing HomeWork, exams, and notes.
MATHEMATICS 24 / ELEMENTARY ALGEBRA I

Course Outline

**Unit I. OPERATIONS on REAL NUMBERS & ALGEBRAIC EXPRESSIONS**

Success in Mathematics; Fractions, Decimals, and Percents; Number Systems and the Real Number Line; Adding, Subtracting, Multiplying, and Dividing Integers; Adding, Subtracting, Multiplying, and Dividing Rational Numbers; Properties of Real Numbers; Exponents and the Order of Operations; Simplifying Algebraic Expressions.

**Unit II. LINEAR EQUATIONS & INEQUALITIES in ONE VARIABLE**

Linear Equations: The Addition and Multiplication Properties of Equality; Linear Equations: Using the Properties Together; Solving Linear Equations Involving Fractions and Decimals; Classifying Equations; Evaluating Formulas and Solving Formulas for a Variable; Problem Solving: Direct Translation; Problem Solving: Percent, Geometry and Uniform Motion; Solving Linear Inequalities in One Variable.

**Unit III. INTRODUCTION to GRAPHING & EQUATIONS of LINES**

The Rectangular Coordinate System and Equations in Two Variables; Graphing Equations in Two Variables; Slope (of a line); Slope-Intercept Form of a Line; Point-Slope Form of a Line; Parallel & Perpendicular Lines; Linear Inequalities in Two Variables.

**UNIT IV. SYSTEMS of LINEAR EQUATIONS & INEQUALITIES**

Solving Systems of Linear Equations by Graphing; Solving Systems of Linear Equations Using Substitution; Solving Systems of Linear Equations Using Elimination; Solving Direct Translation, Geometry, and Uniform Motion Problems Using Systems of Linear Equations; Solving Mixture Problems Using Systems of Linear Equations; Systems of Linear Inequalities.

**UNIT V. EXPONENTS, ROOTS & RADICALS**

Integer Exponents (Chapter 5); Square Roots (Chapter 8)