

I. CATALOG DESCRIPTION

**Math 090: Elementary Algebra**

4 hours per week = 4 units

Covers the basic concepts typically introduced in high school algebra, including operation on polynomials, exponents, solve linear and quadratic equations, inequalities, word problems, factoring fractions, and graphing linear equations.

Prerequisite: Math 952: Prealgebra, with a grade of C or better or eligibility for Math 090 as determined through the SBVC assessment process.

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: One

III. EXPECTED OUTCOMES FOR STUDENTS:

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

- A. Recognize and identify the properties of Addition and Multiplication for real numbers.
- B. Solve linear equations and inequalities.
- C. Analyze an application problem and formulate and express their findings in an appropriate mathematical equation.
- D. Know the vocabulary for polynomials and perform the 4 operations (add, subtract, multiply and divide) for polynomials.
- F. Determine the base and exponent in an exponential expression and use combinations of rules to simplify the exponential expression.
- G. Factor polynomials.
- H. Solve higher-degree equations by factoring.
- I. Perform arithmetic operations with rational expressions to include simplification, addition, subtraction, multiplication and division.
- J. Solve equations containing rational expressions; determine values for which a rational expression is undefined.
- K. Graph a line.

IV. CONTENT

- A. Brief review of the real number system (at instructor's discretion) which may include:
  - 1. Fractions
  - 2. Real numbers and the number line
  - 3. Addition, subtraction, multiplication, and division of real numbers
  - 4. Properties of addition and multiplication
- B. Solving Equations and inequalities
  - 1. Simplifying expressions
  - 2. Solve linear equations
  - 3. Solve linear inequalities
  - 4. Ratio and proportion (optional)
  - 5. Applications
- C. Polynomials and Exponents
  - 1. Exponents

2. Terminology for polynomials
  3. Addition, subtraction, multiplication and division of polynomials
  4. An application of exponents: Scientific Notation (optional)
- D. Factoring and applications
1. Greatest common factor
  2. Factor by grouping
  3. Factor trinomials
  4. Special factorizations
  5. Solve higher order equations by factoring
  6. Applications (optional)
- E. Rational expressions
1. The fundamental properties of rational expressions
  2. Multiplication and division of rational expressions
  3. Addition and subtraction of rational expressions
  4. Complex fractions
  5. Equations involving rational expressions
- F. Graphing Linear Equations
1. Linear equations in two variables
  2. Graphing a line

V. METHODS OF INSTRUCTION

- A. Lecture
- B. Discussion
- C. Drill at the chalkboard
- D. Group study
- E. Computer aided instruction

VI. TYPICAL ASSIGNMENTS

- A. Daily reading and/or problem assignments will reinforce and extend classroom presentations.
- B. Written assignments will include solutions of various problems illustrative of the appropriate mathematical concepts and processes.

VII. EVALUATION(S)

- A. Five to seven regularly scheduled tests
- B. Quizzes and/or homework assignments
- C. Comprehensive final exam

VIII. TYPICAL TEXT(S):

Gustafson/Frisk, Beginning Algebra, Fourth Edition, Brooks Cole Publisher, 1995

IX. OTHER SUPPLIES REQUIRED OF STUDENT: None