I. COURSE TITLE: Elementary Algebra

COURSE NUMBER: 117

CATALOG PREFIX: MATH

II. PREREQUISITES: One of the following
   - 2 years college preparatory math
   - Placement test
   - Math 101

III. CREDIT HOURS: 1-4

LECTURE HOURS: 1-4

LABORATORY HOURS:

OBSERVATION HOURS:

IV. COURSE DESCRIPTION:

This course includes the basis concepts and techniques of elementary algebra. Topics include polynomial operations, factoring, solving first and second degree equations, coordinate system graphing, and an introduction to powers and roots. 1-4 credit hours.

V. ADOPTED TEXT (S):

Beginning Algebra
by: James Streeter
McGraw Hill Publishing Company
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VI. COURSE OBJECTIVES: (GENERAL)

At the completion of this course the student will be able to:

1. Simplify rational numerical expressions using rational numbers, exponents, radicals, and order of operations;
2. Evaluate and/or simplify variable expressions;
3. Solve equations (linear, rational, factorable polynomial, proportions) in one variable;
4. Simplify and factor polynomials;
5. Graph solution sets of equations in two variables;
6. Use slope to recognize properties of lines;
7. Demonstrate the ability to use and solve formulas and apply algebra concepts to problem solving.

VII. GRADING:

Grading will follow policy in catalog.
VIII. COURSE OUTLINE:

Chapter 0: Prime Factorization (Review as needed)

Chapter 1: The Language of Algebra
  1.1 Expressing phrases in symbols (REVIEW AS NEEDED)
  1.2 Properties of addition and multiplication (REVIEW AS NEEDED)
  1.3 Adding/subtracting signed numbers (REVIEW OF MATH 101)
  1.4 Multiplying/dividing signed numbers (REVIEW OF MATH 101)
  1.5 Substitution (REVIEW OF MATH 101)
  1.6 Adding/subtracting terms (REVIEW OF MATH 101)
  1.7 Multiplying/dividing terms

Chapter 2: Equations and Inequalities
  2.1 Solving equations by addition (Review of 101)
  2.2 Solving equations by multiplying (Review of 101)
  2.3 Solving equations of form $Ax + B = Cx + D$ (Review of 101)
  2.4 Solving literal equations/word problems
  2.5 Equations with parentheses/word problems
  2.6 Percent problems (Optional)
  2.7 Inequalities (covered in Math 118)

Chapter 3: Polynomials
  3.1 Exponents and polynomials
  3.2 Negative exponents and scientific notation
  3.3 Adding and subtracting polynomials
  3.4 Multiplying polynomials
  3.5 Special products
  3.6 Dividing polynomials

Chapter 4: Factoring
  4.1 Introduction
  4.2 Factoring trinomials
  4.3 Trinomials of the form $ax^2 + bx + c$
  4.4 Difference of squares
  4.5 Factoring by grouping
  4.6 Using the ac method (optional)
  4.7 Solving equations by factoring (word problems optional)

Chapter 5: Algebraic Fractions
  5.1 - 5.4 will be covered in Math 118
  5.5 Equations involving fractions (Monomial denominators only)/proportion
  5.6 Applications - either rate problems or mixture problems or both

Chapter 6: Graphing Linear Equations
  6.1 Solutions of equations in two variables
  6.2 Rectangular coordinate system
  6.3 Graphing linear equations
  6.4 Slope of a line
  6.5 Direct variation (optional)

Chapter 7: (Most will be covered in Math 118)
  7.1 Point-Slope form
Chapter 8:  (Will be covered in Math 118)

Chapter 9:  Exponents and Radicals
9.1 Roots and radicals
9.2 Simplifying radicals expressions - omit rationalizing denominators
9.3-9.4 will be covered in Math 118
9.5 Distance between two points

Chapter 10:  Quadratic Equations (will be covered in Math 118)

IX.  OTHER REQUIRED BOOKS AND MATERIALS:

Supplemental materials are available in the Learning Resource Center.

X.  EVALUATION:

Assignments will be evaluated according to instructor directives.

XI.  SPECIFIC MANAGEMENT REQUIREMENTS:

Calculators may be used at the discretion of instructor.

When this class is taken for less than 4 credit hours, approximately 25% of the objectives must be completed for each 1 hour credit as outlined below.

1 credit:  Language of Algebra
Signed Numbers
Equations
(Chapters 1, 2.1, 2.2, 2.3)

1 credit:  Polynomials
Exponents and Radicals
Word Problems
(Chapters 3, 9, 2.5, 2.6)

1 credit:  Graphing
Literal Equations
Ratio and Proportion
(Chapters 6, 2.4, 5.5, 7.1)

1 credit:  Factoring
Equations with Fractions
Word Problems
(Chapters 4, 5.5, 5.6)