JEFFERSON COLLEGE

COURSE SYLLABUS

MTH 002
BEGINNING ALGEBRA

3 Credit Hours

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Arts & Science Education
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MTH002 Beginning Algebra

I. CATALOG DESCRIPTION

Prerequisite: COMPASS Pre-algebra score of at least 33, or ASSET Numerical Skills score of at least 38, or ACT Math score of 16 or higher, or MTH001 with a grade of “B” or better.

Beginning Algebra is designed for the student who has had no prior instruction in algebra. The student will work with operations on real numbers, linear equations and inequalities, exponents, operations on polynomials and rational expressions, and graphs. Beginning Algebra is not applicable toward the Associate degree (F, S, Su)

II. GENERAL COURSE OBJECTIVES

Upon successful completion of this course the student will be able to:

A. Know and use the terms and definitions used in algebra.

B. Apply the fundamental order of operations to algebraic expressions.

C. Use the commutative, associative, and distributive properties along with laws of exponents to convert algebraic expressions into alternate algebraic expressions.

D. Use appropriate techniques to solve linear equations, linear inequalities and rational equations.

E. Translate word problems into algebraic form and solve them.

F. Perform arithmetic operations with polynomials.

G. Use appropriate techniques to completely factor trinomial expressions with integer coefficients.

H. Solve quadratic equations by factoring.

I. Perform arithmetic operations with rational expressions.

J. Plot points in the rectangular coordinate system and graph linear equations.

K. Use properties of radicals to convert expressions involving radicals into alternate form.

III COURSE OUTLINE
A. Real Numbers and Variables
   1. Using the distributive property to simplify algebraic expressions
   2. Combining like terms
   3. Using substitution to evaluate expressions and formulas
   4. Grouping symbols

B. Equations and Inequalities
   1. The addition principle
   2. The multiplication principle
   3. Using the addition and multiplication principles together
   4. Equations with fractions
   5. Formulas
   6. Writing and graphing inequalities
   7. Solving inequalities

C. Solving Applied Problems
   1. Translating English phrases into algebraic expressions
   2. Using equations to solve word problems
   3. Solving word problems involving comparisons, the value of money, percents, and geometric formulas

D. Exponents and Polynomials
   1. The rules of exponents
   2. Negative exponents and scientific notation
   3. Addition, subtraction, multiplication, and division of polynomials
E. Factoring
   1. Introduction to factoring
   2. Factor by grouping
   3. Factoring trinomials of the form $x^2 + bx + c$
   4. Factoring trinomials of the form
   5. Special cases of factoring
   6. Solving quadratic equations by factoring

F. Rational Expressions
   1. Simplifying rational expressions
   2. Multiplication, division, addition and subtraction of rational expressions
   3. Equations involving rational expressions

G. Graphing and Functions
   1. Rectangular coordinate systems
   2. Graphing linear equations
   3. Slope of a line

H. Radicals
   1. Square roots
   2. Simplifying radicals
   3. Addition and subtraction of radicals

V. METHOD OF INSTRUCTION
   A. Lecture
   B. Discussion

VI. REQUIRED TEXTBOOK(S) WITH PUBLICATION INFORMATION

My Math Lab, required for selected sections (See course schedule)

VII. REQUIRED MATERIALS (STUDENT)

Notebook paper and pencils.
No calculators are permitted for use in this course.
Laboratory Manual required for selected sections (See course schedule)

VIII. SUPPLEMENTAL REFERENCES
Supplemental internet program, My Math Lab, optional for selected sections
Videotapes, CDs available on Reserve in Mathematics Laboratory, Hillsboro Library, JCNW and JCA Learning Centers

IX. METHOD OF EVALUATION

A. Homework

B. Closed book, closed note quizzes

C. Closed book, closed note tests

D. Closed book, closed note comprehensive final examination