JEFFERSON COLLEGE

COURSE SYLLABUS

MTH 002
BEGINNING ALGEBRA

3 Credit Hours

Prepared by:
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Ms. Shirley Davenport, Dean, Arts & Science Education
MTH002: Beginning Algebra

I. CATALOGUE DESCRIPTION

A. Course pre-requisites/co-requisites:
   COMPASS pre-algebra score of at least 33 within the past two years
   ACT math score of 16 or higher within the past two years, or MTH001 with a
   grade of “B” or better
   Reading proficiency

B. 3 semester credit hours

C. Beginning Algebra is designed for the student who has had no prior instruction in
   algebra. The student will work with operations of signed numbers, exponents,
   rational expressions, graphs, and linear equations. Beginning Algebra is not
   applicable toward the associate degree (F, S, Su, O)

II. EXPECTED LEARNING OUTCOMES/CORRESPONDING ASSESSMENT MEASURE

Note: Each of the following learning outcomes will be measured on at least one in-class
exam, but instructors are encouraged to assess them with additional measures including
homework, quizzes, and/or projects

<table>
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<tr>
<th>Expected Learning Outcomes</th>
<th>Assessment Measures</th>
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<tbody>
<tr>
<td>Use algebraic properties and order of operations to simplify algebraic</td>
<td>Class discussion/practice, homework, and quizzes/tests</td>
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<td>expressions and to convert algebraic expressions into alternate forms</td>
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<tr>
<td>Use appropriate techniques to solve linear equations and linear inequalities</td>
<td>Class discussion/practice, homework, and quizzes/tests</td>
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<td>Translate word problems into algebraic form and solve them</td>
<td>Class discussion/practice, homework, and quizzes/tests</td>
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<tr>
<td>Perform arithmetic operations with polynomials</td>
<td>Class discussion/practice, homework, and quizzes/tests</td>
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<tr>
<td>Use appropriate techniques to completely factor polynomial expressions with integer</td>
<td>Class discussion/practice, homework, and quizzes/tests</td>
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<tr>
<td>coefficients in order to solve quadratic equations</td>
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<tr>
<td>Perform arithmetic operations with rational expressions</td>
<td>Class discussion/practice, homework, and quizzes/tests</td>
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III OUTLINE OF TOPICS

A. Real numbers and variables
   1. Adding, subtracting, multiplying, and dividing real numbers
   2. Exponents
   3. Using the distributive property to simplify algebraic expressions
   4. Combining like terms
   5. Using substitution to evaluate expressions and formulas
   6. Grouping symbols

B. Equations and inequalities
   1. The addition principle of equality
   2. The multiplication principle of equality
   3. Using the addition and multiplication principles together
   4. Solving equations with fractions
   5. Formulas (optional)
   6. Solving inequalities in one variable

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
   4. Using inequalities to solve word problems (optional)

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. Removing a common factor
   2. Factor by grouping
   3. Factoring trinomials of the form $x^2 + bx + c$
   4. Factoring trinomials of the form $ax^2 + bx + c$
   5. Special cases of factoring
   6. Solving quadratic equations by factoring

| Plot points in the rectangular coordinate system and graph linear equations | Class discussion/practice, homework, and quizzes/tests |
| Use properties of radicals to convert expressions involving radicals into alternate form | Class discussion/practice, homework, and quizzes/tests |
F. Rational expressions
   1. Simplifying rational expressions
   2. Multiplying and dividing rational expressions
   3. Adding and subtracting rational expressions

G. Graphing and functions
   1. Rectangular coordinate systems
   2. Graphing linear equations
   3. Slope of a line
   4. Functions (optional)

H. Radicals
   1. Square roots
   2. Simplifying radical expressions
   3. Adding and subtracting radical expressions
   4. Multiplying and dividing radical expressions (optional)
   5. The Pythagorean theorem and radical equations (optional)
   6. Word problems involving radicals: direct and inverse variation (optional)

IV. METHODS OF INSTRUCTION
   A. Lecture
   B. Discussion
   C. In-class activities
   D. MyMathLab interactive assignments

V. REQUIRED TEXTBOOK(S)

VI. REQUIRED MATERIALS
    Notebook paper and pencils
    No calculators are permitted for use in this course

VII. SUPPLEMENTAL REFERENCES
    Contained within MyMathLab:
A. Student Solutions Manual

B. Study Plan

VIII. METHODS OF EVALUATION

A. Homework 10%-20%
   Students will submit homework in MyMathLab but are expected to keep written solutions for all work submitted. Additional problems from the textbook may also be assigned

B. Classwork 0%-20%
   Additional worksheets and projects may be assigned at the discretion of the instructor to reinforce various concepts

C. Quizzes 0%-20%
   Both in-class and online quizzes may be used to evaluate mastery of concepts

D. Tests 30%-60%
   There will be a minimum of three unit tests, each covering 1-2 chapters of material. These exams may be administered on paper or online

E. Comprehensive final examination 15%-25%
   All students will be required to take a comprehensive final exam, the score of which must be included in the final course grade

IX. ADA STATEMENT

   Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Library; phone 636-481-3169)

X. ACADEMIC HONESTY STATEMENT

   Students who are caught cheating or plagiarizing material in this course will not receive credit for the assignment in question and may be dropped from the course with a failing grade. A detailed description of the Academic Honesty Policy statement can be found in the Jefferson College Student Handbook or online at:
   http://www.jeffco.edu/jeffco/index.php?option=com_weblinks&catid=26&Itemid=84

XI. ATTENDANCE STATEMENT

   Students earn their financial aid by regularly attending and actively participating in their coursework. If a student does not actively participate, he/she may have to return financial aid funds. Consult the College Catalog or a Student Financial Services representative for more details.