Elementary Algebra Syllabus

COURSE SYLLABUS
CAMDEN COUNTY COLLEGE
Blackwood, NJ 08012

Course Title: Elementary Algebra Traditional
Course Number: MTH-029
Date of Last Revision: June 2013
Department: Math Skills
Credits: 4 (non-graduation)
Contact Hours:
Lecture 4
Lab 1
Other 0
Prerequisites: Math Fundamentals or the necessary score in Computation and Elementary Algebra on the Placement Test that shows a working knowledge of Computation skills in the real numbers and little or no elementary algebra skills.
Corequisites: None

Course Description/Goals: This course is designed for students who require a background of elementary algebra before taking further college mathematics courses. The course provides the students a familiarity with mathematical symbols and operations in order to formulate and solve first-degree and second-degree equations, graph equations and systems of equations, and work with polynomials, rational expressions, and radicals. (Credits do not apply toward graduation requirements.)

Course Objectives/Student Learning Outcomes:
Upon completion of this course, the student will be able to:
1. identify the order relation between two integers.
2. evaluate expressions containing the absolute value symbol.
3. perform the operations of addition, subtraction, multiplication and division on signed numbers.
4. use the Order of Operations Agreement to simplify expressions.
5. translate English Statements into algebraic statements.
6. manipulate positive and negative exponents.
7. simplify numeric and/or variable expressions.
8. solve linear equations.
9. solve literal equations.
10. solve linear inequalities.
11. perform the operations of addition, subtraction, multiplication and division on polynomials.
12. identify correct types of factoring for polynomials.
   a) common factor
   b) difference of two squares
   c) trinomials
13. factor polynomials that fit into the categories of #12.
14. solve quadratic equations by factoring.
15. perform the operations of addition, subtraction, multiplication and division on rational expressions.
16. solve rational equations.
17. distinguish types of verbal problems (i.e. coin, number, geometric, motion and mixture) and apply appropriate steps to solve the problem.
18. plot ordered pairs on the Cartesian coordinate plane.
19. graph linear equations on the Cartesian coordinate plane using ordered pairs of the solution set and slope.
20. compare consistent, inconsistent, and dependent lines.
21. solve systems of equations by addition.
22. after solving systems of equations, identify pairs of equations that will graph parallel, will intersect or will be the same line.
23. simplify expressions with positive exponents.
24. simplify radicals with an index of 2.
25. perform the operations of addition, subtraction and multiplication on radicals with an index of 2.

Course Outline:
Chapter R & 1   R.2 Fractions
    Sets of Numbers and the Real Number Line
    Exponents, Square Roots and Order of Operations
    Add, Subtract of Real Numbers
    Multiply and Divide of Real Numbers
    Properties of Real Numbers and Simplifying Expressions

Chapter 2   Linear Equations and Inequalities
    Solving Linear Equations
    Linear Equations: Clearing Fractions and Decimals
        Equations and Expressions
    Applications of Linear Equations
    Formulas and Applications of Geometry
    Mixture Applications and Uniform Motion
    Linear Inequalities

Chapter 3   Graphing Linear Equations in Two Variables
    The Rectangular Coordinate System
    Linear Equations in Two Variables

Chapter 4   Systems of Linear Equations in Two Variables
    Solving By Graphing Method
    Solving by Adding Method
    Solving by Substitution Method
    Applications

Chapter 5   Polynomials and Properties of Exponents
    Exponents: Multiplying and Dividing Common Bases
    More Properties of Exponents
    Definition of $b^0$ and $b^{-n}$
    Scientific Notation (objectives 1 and 2)
    Multiplication of Polynomials and Special Products
    Dividing Polynomials (exclude long division)

Chapter 6   Factoring Polynomials
    Greatest Common Factor and Factoring by Grouping
    Factoring Trinomials
    Difference of Squares
    Solving Equations by Using the Zero Product Rule

Chapter 7   Rational Expressions
    Multiplying and Dividing Algebraic Rational Expressions
    Least Common Denominator
    Adding and Subtracting Rational Expressions
    Rational Equations
    Applications of Rational Equations and Proportions
Each instructor is to develop a schedule based on the term calendar.

**Course Activities:**
The classroom activities will include formal and informal lectures where new material and assigned problems will be explained. Students will have the opportunity to contribute to the discussion and to ask questions about the material. Computerized tutorial disks are available for use within or outside of the regularly scheduled classroom hours.

**Student Evaluation:**
At the beginning of the term the instructor is to inform the class of his/her policies concerning all factors that will be considered arriving at the final grade.

Grading:
- A - 90 to 100 W - Withdrawal
- B - 80 to 89 I - incomplete assignments made up within one semester
- C - 70 to 79 NA - non-attend
- D - 60 to 69 XA – never attended
- F – below 60 RV – Express Course

Factors that are to be considered for the final grade:
A. Attendance
   Students are expected to attend 100% of the class meetings. A policy by the instructor may include attendance as part of the student's grade.
B. Classwork and homework
C. Classroom testing
   Numerous daily quizzes and at least three major tests are to be administered during classroom time.
D. Final Examination

**Course Materials:**

Textbooks:  
- Introductory Algebra  
  Miller, O'Neill, Hyde, 2nd Edition
- Elementary Algebra Review  
  Bogardus, Flacche, Freedman, Jackson, Owens and Tannen  
  McGraw - Hill, Inc.

**Supplemental Software Material:**

Software:  
- ConnectMath(Online)

Videotapes:  

Audiotapes: