Course Objectives

Course Title: Introduction to Algebra

Course Description: This course is an introduction to elementary algebraic concepts. It includes operations with real numbers, exponents and radicals, variable expressions, first degree equations, work problems, formulas and graphing. The student will develop the ability to use a scientific calculator efficiently. This course will count neither for elective credit nor toward meeting minimum credit hours for graduation. It is not open to students with credit for 1210.

Credit Hours: 5

Contact Hours: 5 (5 hours lecture, 0 hours lab).

Prerequisite: C grade (2.0) or better in 1200, or score of at least 41 on ASSET

Numerical Skills test, or score of at least 44 on COMPASS Pre-

Algebra/Numerical Skills test. This course will count neither for

elective credit nor toward meeting minimum credit hours for

graduation. This course is not open to students with credit for 1210.

General Course Goals:

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

 1.00 Perform operations with real numbers

2.00 Efficiently use a display scientific calculator

3.00 Evaluate and simplify variable expressions

4.00 Solve linear equations

5.00 Solve problems involving the application of linear equations

6.00 Evaluate and rewrite formulas

7.00 Graph linear equations

8.00 Solve systems of linear equations

Performance Objectives:

Given presentations by the instructor, assigned readings and problems in the textbook, and the opportunity to participate in classroom discussions and activities, the student will demonstrate knowledge as outlined in the following objectives by scoring an average of 72% or better on a series of assignments, quizzes, and/or examinations, as developed by the instructor.

Specifically, the student will be able to:

1.00 Perform operations with real numbers

1.01 Order a set of real numbers

1.02 Identify opposites and reciprocals

1.03 Evaluate numerical expressions containing absolute value

1.04 Add, subtract, multiply, and divide integers and rational numbers

1.05 Find a pair of integers that will result in both a given product and a given sum

1.06 Evaluate exponential expressions

1.07 Perform a series of operations in the correct order

1.08 Evaluate numerical expressions containing negative and zero exponents

1.09 Convert rational numbers to scientific notation and vice-versa

1.10 Multiply and divide numbers written in scientific notation

1.11 Evaluate radicals

1.12 Simplify non-perfect square roots by factoring

1.13 Evaluate numerical expressions containing fractional exponents

2.00 Efficiently use a display scientific calculator

2.01 Perform a series of basic operations on rational numbers

2.02 Evaluate numerical expressions containing exponents and radicals

2.03 Use the scientific notation capabilities of the calculator

3.00 Evaluate and simplify variable expressions

3.01 Identify variables, terms, factors, and algebraic expressions

3.02 Evaluate an expression

3.03 Simplify an expression by combining like terms

3.04 Use the product rule to multiply monomial expressions

3.05 Use the quotient rule to divide monomial expressions

3.06 Use the power rule to raise a product or a quotient to a power

3.07 Use the distributive property to multiply a binomial by a monomial

3.08 Use the distributive property to remove the greatest common factor

3.09 Factor a 4-term expression by grouping

3.10 Find the opposite of an expression

3.11 Add and subtract expressions

3.12 Simplify an algebraic expression containing parentheses and brackets

3.13 Translate a verbal expression into a variable expression

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4.00 Solve linear equations

4.01 Determine if a given number is a solution

4.02 Solve equations of the form x + a =b and ax = b

4.03 Solve equations of the form ax + b = c and ax + b = cx + d

4.04 Solve any first degree equations

4.05 Translate a sentence into an equation and solve it

5.00 Solve problems involving the application of linear equations

5.01 Solve percent problems

5.02 Solve markup and discount problems

5.03 Solve investment problems

5.04 Solve value mixture problems

5.05 Solve percent mixture problems

5.06 Solve uniform motion problems

5.07 Solve perimeter problems

6.00 Evaluate and rewrite formulas

6.01 Evaluate formulas

6.02 Manipulate simple formulas to solve for any variable

7.00 Graph linear equations

7.01 Graph points on a rectangular coordinate system

7.02 Graph linear equations using a table of ordered pairs

7.03 Graph linear equations using slope and intercepts

7.04 Find the equation of a line given the slope and a point

7.05 Find the equation of a line given two points

7.06 Solve application problems involving two data points

8.00 Solve systems of linear equations

8.01 Solve a system of 2 linear equations by graphing

8.02 Solve a system of 2 linear equations algebraically

8.03 Solve application problems