TAFTCOLLEGE

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Mathematics (MATH) 1050 Elementary Algebra (4 Units)
[formerly Mathematics 50]

Prerequisite: Qualification by assessment process or completion of Mathematics 0240 with a grade of 'C' or higher

Prerequisite knowledge/skills: Before entering the course, the student should be able to:

1. describe the differences among the whole number, integer and rational number systems, identify numbers from those systems, and be able to graph these numbers on a number line,
2. add, subtract, multiply and divide positive and negative integers,
3. substitute variable values into formulas and equations,
4. evaluate simple expressions using all of the properties of integral exponents,
5. solve simple linear equations,
6. evaluate mixed expressions involving order of operations,
7. solve application problems related to linear equations,
8. add, subtract, multiply, and divide rational number (positive and negative fractions and positive and negative decimals),
9. evaluate ratio and proportions,
10. solve percent problems,
11. convert measurements within the English and metric systems and between the English and metric systems,
12. be able to read and graph linear equations, and
13. find areas and volumes of various circles, triangles, and quadrilaterals, and solve application problems associated with these figures.

Advisory: Eligibility for English 1000 and Reading 1005 strongly recommended

Hours and Units Calculations:
64 hours lecture. 128 Outside of class hours. (192 Total Student Learning Hours) 4 Units

Catalog Description: This is an introductory course in elementary algebra that introduces the real number system; equations; inequalities; graphs of linear equations and inequalities in two variables; systems of linear equations and inequalities; exponents and polynomials; and factoring.

Type of class/course: Degree credit

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Text: Lial, Hornsby, McGinnis. Introductory and Intermediate Algebra. 6th ed. Pearson, 2018.

Additional Instructional Materials:
Online Videos
Online Tutor Center at www.MyMathLab.com

Course Objectives:

By the end of the course, a successful student will be able to:

1. use inequality symbols and exponents, and apply order of operations rules in complex calculations,
2. identify numbers as belonging to specified sets, such as rational numbers, ad graph numbers on the real number line,
3. perform the basic arithmetic operations with positive and negative real numbers, using the number line to clarify addition and subtraction processes,
4. know the properties of addition and multiplication for real numbers and identify their use in practice,
5. solve linear equations and inequalities in one variable, and analyze and solve word problems leading to linear equations,
6. solve formulas for specified variables and use the resulting equations in solving word problems,
7. set up and solve problems involving the use of ratios and proportions,
8. know and apply the rules of exponents using integral exponents, and use scientific notation,
9. perform addition, subtraction, multiplication and division of polynomials,
10. factor simple polynomials, with special emphasis on trinomials quadratic in form and special factorizations, and solve related polynomial equations,
11. analyze and solve word problems requiring the setting up and solution of factorable quadratic equations,
12. graph points representing specified ordered pairs using a standard two dimensional rectangular coordinate systems. Graph a straight line from ordered pairs obtained from its equation,
13. determine the slope of a line between any specified pair of points,
14. know the slope-intercept and point-slope forms of the equation of a straight line, and be able to determine the equation of a particular straight fine from specified input information,
15. solve and graph linear inequalities in two variables,
16. solve linear systems of equations in two variables both graphically and algebraically, and recognize inconsistent and dependent systems,
17. analyze and solve word problems requiring the use of linear systems of equations in two variables,
18. solve linear systems of inequalities in two variables graphically, and
19. find the value of integral roots of positive real numbers.

Course Scope, and Content:

Unit I The Real Number System

A. Use exponents, order of operations and inequalities,
B. Evaluate algebraic expressions and identify solutions to equations,
C. Classify numbers and graph them on a number line and find the opposite and absolute value of a number,
D. Add integers and use the order of operations,
E. Subtract integers and use the order of operations,
F. Multiply and divide integers and use the order of operations,
G. Identify and use the properties of real numbers, and
H. Simplify expressions and identify like terms.

Unit II Equations, Inequalities, and Applications

A. Solve equations using the addition property of equality,
B. Solve equations using the multiplication property of equality,
C. Solve linear equations with factions or decimals,
D. Solve applications of linear equations,
E. Solve a formula for one variable,
F. Write rations and solve proportions, and
G. Use the addition and multiplication property of inequality.

Unit III Graphs of Linear Equations in Two Variables

A. Read graphs and solve linear equations in two variables,
B. Graph linear equations in two variables,
C. Calculate slope, and
D. Use the slope-intercept form and point-slope form to write equations of lines.

Unit IV Systems of Linear Equations and Inequalities

A. Solve systems of linear equations by graphing,
B. Solve systems of linear equations by substitution,
C. Solve systems of linear equations by elimination, and
D. Solve applications of linear systems.

Unit V Exponents and Polynomials

A. Add and subtract polynomials,
B. Use exponent rules,
C. Multiply polynomials,
D. Multiply binomials,
E. Use exponent rules,
F. Divide polynomials by monomials,
G. Divide polynomials by polynomials, and
H. Use scientific notation.

Unit VI Factoring and Applications

A. Find the greatest common factor,
B. Factor trinomials,
C. Factor trinomials by grouping,

D. Factor trinomials using FOIL,
E. Factor difference of squares and perfect square trinomials, and
F. Solve quadratic equations by factoring.

Learning Activities Required Outside of Class:

The students in this class will spend a minimum of 8 hours per week outside of the regular class time doing the following:

1. Studying
2. Skill practice
3. Completing assignments
4. Working in the mathematics lab with tutor as necessary

Methods of Instruction:

1. Lecture-demonstrations and simple problems solved by the instructor,
2. Occasional lab activities on the computer and/or calculator, and
3. Demonstrations and interactive lessons from the Internet.

Methods of Evaluation:

1. Computational or non-computational problem solving demonstrations including:
2. exams,
3. homework problems,
4. quizzes,
5. projects, and
6. final examination.

Supplemental Data:

TOP Code:	170100: Mathematics, General
SAM Priority Code:	E: Non-Occupational
Distance Education:	Online; Offline
Funding Agency:	Y: Not Applicable(funds not used)
Program Status:	1: Program Applicable
Noncredit Category:	Y: Not Applicable, Credit Course

Special Class Status:	N: Course is not a special class
Basic Skills Status:	N: Course is not a basic skills course
Prior to College Level:	B: 2 levels below transfer
Cooperative Work Experience:	N: Is not part of a cooperative work experience education program
Eligible for Credit by Exam:	E: Credit By Exam
Eligible for Pass/No Pass:	C: Pass/No Pass
Taft College General Education:	NONE
Discipline:	Mathematics