COURSE OUTLINE

MATH 061
Basic Algebra & Geometry

4 Semester Hours

HOWARD COMMUNITY COLLEGE

Course Description

In this course students will be introduced to algebraic topics such as working with signed numbers, simplifying numeric expressions with exponents, combining like terms, multiplying polynomials and evaluating algebraic expressions. They will learn to distinguish among examples of the commutative, associative and distributive properties. Students will solve first degree equations, solve and graph linear inequalities on a number line, graph lines and investigate slope, slope-intercept form and the x- and y- intercepts. They will become familiar with elementary topics in geometry such as basic definitions, classification of angles, triangles, perimeter, area and volume. Prerequisite: MATH 060 or appropriate score on the math placement test **and** ENGL 093 or appropriate score on the English placement test.

Overall Course Objectives

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

1. Add, subtract, multiply, divide and find the absolute value of integers and fractions.
2. Integer exponents.
3. Evaluate algebraic expressions.
4. Indicate the degree and the number of terms of a polynomial.
5. Add, subtract and multiply polynomials.
6. Solve linear inequalities and graph the solution on a number line.
7. Solve literal equations for a specified variable.
8. Solve single variable application problems involving linear equations and inequalities.
9. Interpret data represented in graphs such as bar graphs and pie charts.
10. Graph a line using the slope-intercept form of a linear equation.

Major Topics

I. Integers
   A. Basic Operations, Absolute Value and Negative Exponents
   B. Simplify integer exponents.
II. Algebraic Translations
III. Order of Operations
IV. Polynomials
   A. Adding, Subtracting and Multiplying Algebraic Expressions
V. Laws of Algebra
VI. Commutative, Associative, Distributive
VII. Solving Linear Equations and Inequalities
   A. Equations with Parentheses
   B. Literal Equations
   C. Linear Inequalities
   D. Solve word problems using equations
VIII. Introduction to Geometry
   A. Basic Definitions, Classifying Angles
   B. Supplementary, Complementary and Vertical Angles
   C. Sum of the Angles of a Triangle
   D. Triangles
   E. Perimeter, Circumference, Area and Volume
IX. Graphing Linear Equations
   A. Graphing from Tables
   B. Slope, Slope-Intercept
   C. Vertical and Horizontal lines
   D. Parallel lines

Course Requirements

Grading/Exams: Grading procedures are established by the Mathematics Division and will include several unit exams, quizzes and a comprehensive final exam.

Technology requirements: Scientific calculator (TI-89 is not permitted) and required course software. All sections require the use of the interactive computer program which may be purchased with or without the text. If a home machine is unavailable, students may use computers in the computer lab.

Other Course Information

Credits awarded for the completion of this course do not fulfill degree requirements in any degree or certificate program and are not transferrable to four-year colleges.