

# Common Course Outline

**MATH 081**

**Pre-Algebra**

**0 Credits**

## Community College of Baltimore County

### Description

**MATH 081 – Pre-Algebra** begins with a review of integers and rational numbers and then proceeds to the study of algebraic expressions, first degree equations and inequalities in one variable, formulas, proportions, and percent. Another major focus is linear equations, which covers graphing points, determining slope, writing linear equations, and graphing lines. Successful participation in and completion of this course requires that student skills be at the secondary level.

**0 Credits:** 1-3 billable hours

**Prerequisite:** ASE MATH or a satisfactory score on the math placement test.

**Co-requisite:** ACLT 052 or ESOL 044

### Overall Course Objectives

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

1. perform arithmetic operations on rational numbers;
2. evaluate the absolute value of rational numbers;
3. evaluate rational numbers with exponents;
4. evaluate roots of perfect squares, cubes, and fourths;
5. simplify arithmetic expressions using order of operations;
6. evaluate algebraic expressions;
7. simplify algebraic expressions;
8. solve first degree equations in one variable;
9. solve first degree inequalities in one variable;
10. graph first degree inequalities in one variable on a number line;
11. evaluate and solve formulas;
12. solve proportions;
13. solve percent problems;
14. plot points on the coordinate plane and write ordered pairs for plotted points;
15. determine if an ordered pair is a solution of a linear equation;
16. determine the  $x$  and  $y$  intercepts of a line;
17. interpret and calculate slopes of lines;
18. determine equations of lines;
19. graph linear equations;
20. solve systems of linear equations by graphing; and

21. solve application problems by translating English sentences into algebraic equations and solving them.

### **Major Topics**

- I. Real Numbers
  - A. Operations with Integers
  - B. Operations with Rational Numbers
  - C. Absolute Value
  - D. Numbers in Exponential Form
  - E. Roots of Perfect Squares, Cubes, and Fourth Roots
  - F. Order of Operations
- II. Algebraic Expressions
  - A. Variables
  - B. Evaluating Algebraic Expressions
  - C. Simplifying Algebraic Expressions
  - D. Translating English Phrases to Algebraic Expressions
- III. First Degree Equations in One Variable
  - A. Solving One and Two Step Equations
  - B. Solving Multi-Step Equations
  - C. Solving Equations with Rational Numbers
  - D. Application Word Problems
- IV. First Degree Inequalities in One Variable
  - A. Solving Inequalities
  - B. Graphing Inequalities
  - C. Interval Notation
  - D. Application Word Problems
- V. Applications of Equations
  - A. Evaluating and Solving Formulas
  - B. Proportion Problems
  - C. Percent Problems
- VI. Linear Equations
  - A. Points on the Rectangular Coordinate System
  - B. Intercepts of a Line
  - C. Slope of a Line
  - D. Equation of a Line
  - E. Graph of a Line
  - F. Solving Systems by Graphing
  - G. Application Problems

### **Course Requirements**

Students must have an overall average of 70% or higher to pass this course. Grading procedures will be determined by the individual faculty member but must include the following:

#### **Grading/exams:**

- A Cumulative Departmental Final Exam will count as 30% of the course grade.
- At least two other exams during the semester created by the faculty member worth 40% to 60% of the course grade.

**Other Course Information**

This course is offered in several formats including, but not limited to, self-paced, lecture, and online.

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