

**Common Course Outline**  
**MATH 083**  
**Intermediate Algebra**  
**0 Credits; 1-3 Billable Hours**

**Community College of Baltimore County**

**Description**

**MATH 083 –Intermediate Algebra** covers rational expressions and equations, radicals, quadratic equations, complex numbers, functions and relations, and exponential and logarithmic functions.

**0 credits; 1-3 Billable Hours**

**Pre-requisites:** MATH 082 or a satisfactory score on the math placement test

**Corequisite:** ACLT 052

**Overall Course Objectives:**

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

1. simplify and perform algebraic operations on quadratic expressions, including factoring;
2. simplify and perform algebraic operations on rational expressions;
3. simplify and perform algebraic operations on radical expressions and variable expressions with rational exponents;
4. identify and perform operations on complex numbers;
5. recognize and evaluate exponential and logarithmic expressions;
6. solve quadratic equations and applications;
7. solve rational equations, including proportion and variation applications;
8. solve radical equations;
9. identify functions and use function notation;
10. perform algebraic operations on functions;
11. graph and recognize the graphs of quadratic, exponential, and logarithmic functions; and
12. determine the domain and range of functions

**Major Topics**

- I. Relations and Functions
  - A. Identify a relation and specify its domain and range
  - B. Identify a function and specify its domain and range
  - C. Recognize and use function notation
  - D. Perform algebraic operations on functions
- II. Polynomial Expressions and Equations
  - A. Identify monomial and binomial greatest common factors
  - B. Factor polynomial expressions using various methods
  - C. Solve polynomial equations
- III. Rational Expressions and Equations
  - A. Simplify rational expressions and identify where these expressions are undefined
  - B. Perform algebraic operations on rational expressions
  - C. Solve rational equations and proportions using various methods

- D. Solve applications using variation
- IV. Radical Expressions and Equations
  - A. Simplify and evaluate roots and other radical expressions
  - B. Recognize and simplify expressions with rational exponents
  - C. Utilize algebraic properties to perform algebraic operations on radical expressions
  - D. Rationalize a monomial denominator
  - E. Identify and perform algebraic operations on complex numbers
  - F. Solve radical equations
- V. Quadratic Expressions, Equations, and Functions
  - A. Factor and simplify quadratic expressions
  - B. Solve quadratic equations using various methods
  - C. Recognize the graph of quadratic functions and identify domain and range
  - D. Graph quadratic functions using axis of symmetry, vertex, and intercepts
  - E. Solve applications involving quadratic functions
- VI. Exponential and Logarithmic Expressions, Equations, and Functions
  - A. Explore relationship between exponential and logarithmic expressions
  - B. Simplify and evaluate exponential and logarithmic expressions
  - C. Recognize and graph exponential and logarithmic functions
  - D. Identify domain and range of exponential and logarithmic functions
  - E. Use exponential properties to solve basic exponential and logarithmic equations
  - F. Solve applications involving exponential and logarithmic equations

### **Course Requirements**

Graded assignments will be determined by the individual faculty member but should include the following:

### **Grading/exams:**

1. At least two (2) written assessments (e.g., classwork, quizzes, tests)
2. A comprehensive departmental final examination that must count as 30% of the students' overall course grade.

Students must have an overall average of at least 70% to pass this course.

### **Other Course Information**

This course is an approved **0 Credits; 1-3 Billable Hours** Developmental Mathematics course.

Date Revised: 05/15/19