Common Course Outline
Math 101
Intermediate Algebra – A Functional Approach
3 Semester Hours

The Community College of Baltimore County

Description

The topics include functions and relations, functional notation, operations of functions, systems of linear equations, linear and quadratic functions, solutions of quadratic and radical equations, complex numbers, rational expressions and equations, exponential and logarithmic functions, and conic sections. A graphing calculator may be used in class.

Prerequisites: (ENGL 051 or ESOL 051 or LVE 1 or LVE 2 or LVE 3) and (RDNG 052 or LVR 2) and (MATH 082 or MATH 013 with a grade of S) or (LVM2 or LVM 3 or LVM4 or LVM5) or a satisfactory score on the math placement test.

Overall Course Objectives

Students will be able to:

    A.   identify functions and use function notation
    B.   determine the domain and range of a function
    C.   factor, add, subtract, multiply, divide, and compose functions
    D.   graph linear, quadratic, exponential and logarithmic functions
    E.   solve quadratic equations by 1) factoring, 2) completing the square, 3) the quadratic formula, and 4) graphing the function
    F.   solve applications of quadratic equations
    G.   perform operations on complex numbers
    H.   solve radical equations
    I.   simplify, factor, add, subtract, multiply, and divide rational expressions
    J.   solve rational equations
    K.   determine the domain and range of exponential and logarithmic function
    L.   solve exponential and logarithmic equations
    M.   recognize and graph conic sections

Major Topics

I. Functions and Relations
    A. Introduce function notation
    B. Identify the domain and range of a function
    C. Perform operations on functions

II . Quadratic Functions
  A. Graph quadratic functions, identifying domain and range and using function notation
  B. Solve quadratic equations using the square root method, factoring, completing the square and the quadratic formula
  C. Perform operations on complex numbers
  D. Solve quadratic equations (including equations with complex number roots)
  E. Use optimization and simulation methods
  F. Solve radical equations
III. Polynomial, Radical, and Rational Functions and Equations
  A. Perform operations on polynomial expressions and factor
  B. Graph power and polynomial functions, identifying domain and range and using function notation
  C. Simplify radicals and expressions with rational exponents
  D. Perform operations on rational expressions
  E. Solve rational equations
IV. Exponential and Logarithmic Functions and Equations
  A. Graph exponential functions, identifying domain and range and using function notation
  B. Use properties of logarithms
  C. Solve exponential equations
  D. Solve logarithmic equations
VI. Conic Sections
  A. Graphs parabolas, circles, ellipses, and hyperbolas
  B. Write equation of parabolas, circles, ellipses, and hyperbolas

Course Requirements

Grading: Grading procedures will be determined by the individual faculty member but will include the following:

1. Two (2) written examinations (80% applications based)
2. Individual and group work
3. Oral presentation of homework solutions

Individual faculty members may include additional course objectives, major topics, and other course requirements to the minimum expectations stated in the Common Course Outline.

The Community College of Baltimore County is committed to providing a high-quality learning experience that results in growth in knowledge, attitudes, and skills necessary to function successfully as a transfer student, in a career and as a citizen. To accomplish this goal, we maintain high academic standards and expect students to accept responsibility for their individual growth by attending classes, completing all homework and other assignments, participating in class activities and preparing for tests.

We take seriously our responsibility to maintain high-quality programs and will periodically ask you to participate in assessment activities to determine whether our students are attaining the knowledge, attitudes and skills appropriate to various courses and programs. The assessment activities may take many different forms such as surveys, standardized or faculty-developed tests, discussion groups or portfolio evaluations. We ask that

you take these activities seriously so that we can obtain valid data to use for the continuous improvement of CCBC's courses and programs.

Date revised: 09/22/2000