

NASSAU COMMUNITY COLLEGE
DEPARTMENT OF MATHEMATICS/STATISTICS/COMPUTER PROCESSING
Course Outline

MAT 109
Algebra & Trigonometry

Curriculum	Interdisciplinary
Lab hours	None
Semesters offered	Indicated in Catalog
Length of semester	15 Weeks
Class hours	4.5
Credits	4
Texts	1. Essentials of Algebra and Trigonometry by Christy, Rosenfeld & Botkin. Published by Pearson 2. Algebra and Trigonometry by Blitzer, 3rd edition. Published by Prentice Hall

PREREQUISITE

Satisfactory completion of MAT 002 or a working knowledge of elementary algebra.

CATALOG DESCRIPTION

This course considers fundamental ideas from algebra, trigonometry and geometry. A problem solving approach is used.

MATH CENTER REQUIREMENT

As part of this course, students should avail themselves of further study and/or educational assistance available in the Mathematics Center: B-130 and B-126. These activities and use of the resources provided are deemed an integral part of the course, and will help the student master necessary knowledge and skills.

OBJECTIVES

General

This course covers most of the topics included in the high school course called "algebra 2 and trigonometry" and is planned for the student having deficiencies in that area who plans to go on with the study of mathematics.

Specific

To improve the students' ability to solve problems in an orderly and logical manner, to provide the student with the basic ideas of numerical and analytic trigonometry, to develop accuracy and speed in the manipulations of algebraic functions, to acquaint the student with the basic equation forms and the graphs and problems that involve these forms. Without decreasing the emphasis on the traditional algebraic skills, a graphing calculator similar to the Texas Instruments TI-83/84 is recommended as a technological tool to assist in the integration of the above concepts.

TOPICS for using Essentials of Algebra and Trigonometry, Christy et al.

Section	Title
1.1	Real numbers
1.2	Algebraic expressions and geometric formulas
1.3	Integer exponents
1.4	Products of algebraic expressions
1.5	Linear equations and literal equations (formulas)
1.6	Applications of linear equations
1.7	Linear inequalities in one variable
1.8	Compound inequalities
2.1	Functions, relations and ordered pairs
2.2	Functions and graphs
2.3	Variation
2.4	Functional notation and piecewise functions
2.5	Graphing techniques (include symmetry and translations)
2.6	Absolute value equations and inequalities (stress geometrical method)
2.7	The slope of a line and the distance formula
2.8	Linear functions
3.1	Systems of linear equations in two variable
4.1	Trigonometric functions of acute angles
4.2	Right triangle applications
4.3	Trigonometric functions of general angles (do not emphasize exact answers)
4.4	Introduction to trigonometric equations
9.7	Law of Sines (omit the ambiguous cases)
9.8	Law of Cosines (omit area of triangles)
5.1	Factoring polynomial and trigonometric expressions
5.2	Special factoring models and a factoring strategy
5.3	Solving equations by factoring
5.4	Multiplication and division of fractions
5.5	Addition and subtraction of fractions
5.6	Complex fractions
5.8	Equations that contain fractions
6.1	Radicals and rational exponents
6.2	Product and quotient properties of radicals
6.3	Addition and subtraction of radicals
6.4	Further radical simplification
6.5	Radical equations
6.6	Complex numbers (omit division and powers of i)
7.1	Solving quadratic equations (square root property only)
7.2	The quadratic formula
7.4	Solving inequalities involving polynomials (omit rational inequalities)

TOPICS for using Algebra and Trigonometry, 3rd edition, Blitzer.

Section	Title
P.1	Algebraic expressions and real numbers
P.2	Exponents and scientific notation
P.3	Radicals and rational exponents
P.4	Polynomials
P.5	Factoring polynomials
P.6	Rational expressions
1.1	Graphs and graphing utilities
1.2	Linear equations and rational equations
1.3	Models and applications
1.4	Complex numbers (omit division and powers of i)
1.5	Quadratic equations
1.6	Other types of equations
1.7	Linear inequalities and absolute value inequalities
2.1	Basics of functions and their graphs
2.2	More on functions and their graphs
2.3	Linear functions and slope
2.4	More on slope
3.6	Solving Quadratic Inequalities <i>only</i> (omit rational and absolute value inequalities)
2.5	Transformations of functions
2.8	Distance and midpoint formulas: circles
8.1	Systems of linear equations in two variables
5.1	Angles and radian measure (omit radian measure)
5.2	Right triangle trigonometry
5.8	Applications of trigonometric functions (solving right triangles only)
5.3	Trigonometric functions of any angles
6.5	Trigonometric equations
7.1	The Law of Sines
7.2	The Law of Cosines

NOTE TO THE INSTRUCTOR

- There should be frequent evaluations of each student's progress. To attain this goal, approximately four full period examinations should be given.
- It is recommended that instructors using the “Essentials” text try to cover chapter 1 as quick as possible.