



Southern Lehigh School District

High School Syllabus

College Algebra School Year 2012-2013

Course Description:

This course is offered to college bound juniors and seniors. Success in college level mathematics begins with a good understanding of algebraic concepts. The goal of this course is to help students develop this understanding. Topics covered include: special products, factoring, radicals, rational exponents, and linear and quadratic equations and inequalities. These concepts are then applied to topics such as: complex numbers, rational polynomials, exponential functions, higher degree equations and trigonometry. A TI graphing calculator will be an integral part of this course.

Note: This course will emphasize such topics as exponents and radicals, factoring, complex numbers, rational expressions, functions and their graphs, shifting and reflecting graphs, inverse functions, solving equations and inequalities both algebraically and graphically, polynomial and rational functions, systems of equations, and sequences. A graphing calculator is required.

Course Content:

1. Fundamental of Algebra
 - Real numbers and properties of
 - Solving linear equations algebraically
 - Solving equations graphically
 - Absolute value
 - Integer exponents
 - Radicals
 - Rational exponents
 - Operations with polynomials
 - Factoring polynomials
 - Fractional expressions
 - Solving polynomials
 - Operations with rational expressions
 - Complex numbers
 - Solving systems of equations
 - Solving multivariable linear systems

2. Functions and Graphs
 - Functions concepts
 - Graphing of lines on the coordinate system
 - Linear functions
 - Systems of equations
 - Graphing quadratic functions
 - Shifting, Reflecting, and stretching graphs
 - Applications of quadratic functions

Quadratic models and scatter plots
Combinations of functions
Inverse functions

3. Polynomial and Rational Functions

Hints for graphing
Graphing rational functions and asymptotes
Polynomial functions
Equations and inequalities with Fractions
Synthetic division
The remainder theorem
Solving polynomial equations
Analyze data and solve problems through regression equations
Solve problems through non-linear regression equations.
Solve problems that can be modeled with sequences or series
Use a graphing calculator to solve problems by analyzing graphs of equations, tables of values, scatter plots and regression equations

4. Trigonometry

Angle Definition
Degree Measure
Radian Measure
Cosine
Sine
Tangent
Secant
Cosecant
Cotangent
Periodic Functions
Graphing the Six Trigonometric Functions
Learn the unit circle
Graph the sine function over a given interval
Graph the cosine function over a given interval
Define amplitude
Define period
Define phase shift
Define vertical shift
Solving a right triangle

Required Textbooks and/or Other Reading/Research Materials

Workshop I Getting Started on the TI-83
Workshop II Graphing Functions on the TI-83 or 84 Graphing Calculators

Textbook - Algebra & Trigonometry
Blitzer
Isbn # 013192124x

Course Requirements:

All students are required to complete all quizzes, tests, and homework assignments

Grade Components/Assessments:

Tests:	40%
Quizzes:	30%
Homework:	10%
Alternative Assessment:	10%
Notebook Quiz	10%

Each marking period is worth 20% of a student's overall grade. The midterm and final exam are each worth 10% of a student's overall average:

Quarter 1	20%
Quarter 2	20%
Midterm	10%
Quarter 3	20%
Quarter 4	20%
Final	10%

Required Summer Reading/Assignments:

No summer reading assignments.