



Reseda High School
Police Academy Magnet
Law and Public Service Magnet
CC Algebra 2 A/B
Instructor: Mr. Ethington

Course Description:

In Common Core Algebra 2 A/B, while integrating *law and law enforcement themes*, we will expand students' knowledge gained in CC Algebra 1 and CC Geometry, and prepare students with the skills they need to delve into higher math. We will also develop logical thought processes with emphasis on reasoning and logical arguments. We will be using the SpringBoard program of instruction.

Topics of Instruction:

Unit 1: Equations, Inequalities, and Functions

Creating Equations in One Variable
Creating Equations in Two Variables
Absolute Value Equations and Inequalities
Graphing Two-Variable Equations
Graphing Systems of Inequalities
Solving Systems of Two Equations in Two Variables
In Hot Pursuit
Solving Systems of Equations in Three Variables
Minimizing officer risk
Piecewise Functions
Step-Functions and Absolute Value Functions
Transforming Absolute Value Functions
Operations with Functions
Function Composition
Following the Proper Protocols
Inverse Functions
Graphing Inverse Functions

Unit 2: Quadratic Functions

Analyzing a Quadratic Function
Factoring Quadratic Expressions
Key suspects method
Solving Quadratic Equations by Factoring
The Scales of Justice
More Uses for Factoring
Imaginary Numbers
Operations with Complex Numbers
Factoring with Complex Numbers

Completing the Square and Taking Roots
The Quadratic Formula
Solutions of Quadratic Functions
Parabolas and Quadratic Equations
Writing Quadratic Functions from Data
Quadratic Regression
Translating Parabolas
Shrinking, Stretching, and Reflecting Parabolas
Vertex Form
Dissecting Quadratic Functions
Graphing Quadratic Functions
Path of a bullet in flight
The Discriminant
Graphing Quadratic Inequalities
Solving Systems of Linear and Nonlinear Equations Graphically
Solving Systems of Linear and Nonlinear Equations Algebraically

Unit 3: Polynomials

Polynomials, an Introduction
Attributes of Polynomial Functions
Even and Odd Functions
Adding and Subtracting Polynomials
Multiplying Polynomials
Dividing Polynomials
Pascal's Triangle
Applying the Binomial Theorem
Algebraic Methods of Factoring Polynomials
The Fundamental Theorem of Algebra
Converse of Key suspects method
Graphing Polynomial Functions
Finding Roots of Polynomial Functions
Comparing Polynomial Functions

Unit 4: Series, Exponential, and Logarithmic Functions

Arithmetic Sequences
Arithmetic Series
Sigma Notation
Geometric Sequences
Geometric Series
Convergence of Series
Exploring Exponential Patterns
Exponential Functions
Exponential Graphs and Asymptotes
Transforming Exponential Functions
Natural Base Exponential Functions
Using Exponential Data
Exponential decay to solve cold cases
Common Logarithms
Properties of Logarithms
Logarithms of Any Base

Logarithm Change of Base Formula
Graphs of Logarithmic Functions
Exponential Equations
Solving Equations by Using Logarithms
Time of death by body temperature
Logarithmic Equations
Exponential and Logarithmic Inequalities

Unit 5: Radical and Rational Functions

Square Root Functions
Solving Square Root Equations
Cube Root Functions
Solving Cube Root Equations
Square Root Functions and Regressions
Information from Skid marks
Square Root and Quadratic Functions
Cube Root and Cubic Functions
Formulating and Graphing a Rational Function
Identifying Asymptotes
Inverse Variation and Combined Variation
Transformations of Rational Functions
Multiplying and Dividing Rational Expressions
Adding and Subtracting Rational Expressions
Finding Horizontal and Vertical Asymptotes
Graphing Rational Functions
Solving Rational Equations
Solving Rational Inequalities

Unit 6: Probability and Statistics

Shapes of Distributions
Characteristics of the Normal Distribution
z-scores and their Probabilities
Modeling with the Normal Distribution
Using Surveys
Using Experiments
Observational Studies
Devising Simulations
Maximizing the deterrent effect of laws and law enforcement
Confirming Data with Simulations
Computing Margin of Error
Random Choice
Testing Statistical Significance
Evaluating the efficacy of laws

Grading

Grade cutoffs used are as follows, A: 90% and up, B: 80% to 89%, C: 70% to 79%, D: 60% to 69%, F: 59% and below.

Attendance, Cooperation and Work Habits

You are required to follow the attendance policy of the school. Your attendance will have a direct connection to your semester grade. Attending class is very important, especially with the institution of the 4 by 4 block schedule. Absent students will miss opportunities to receive in class participation and classwork points. In order to be successful, you must attend class on a regular basis. Exams and quizzes must be made up the day you return to school.

Cooperation and respect are expected at all times. Compliance with school and classroom rules is required. Deviation from behavior requirements will result in class suspension.

Assignment Types

Student grades will be determined using student work demonstrating theoretical knowledge of the subject, student work demonstrating application of the subject to real life situations, student work on the Midterm and Final Exam at the end of each mester, and using student in class participation as follows:

Theoretical Work -	50%
Application Work -	30%
Midterm/Final Exam -	15%
Participation -	5%

Theoretical and Application Work will be comprised of tests, quizzes, written explanations, classwork/homework assignments, Warm Ups, SpringBoard Embedded Assessments, SpringBoard Workbook activities, projects, and other assignments.

Classwork/Homework and Cheating Policy

All classwork and homework will be assigned during class, and is due the next day of class. All classwork not finished in class is to be completed for homework. Unfinished assignments may impact students' Theoretical Work grades, or Application Work grades, and neglect of in class assignments will impact participation grades as well. All student work must be that of the individual student. CHEATING of any type will not be tolerated. This applies to ANY and ALL assignments. Any incidence of cheating will result in parent conferencing, a zero on the assignment (for all students(s) involved) and a "U" in both work habits and cooperation on all report cards in addition to the consequences outlined in the cheating policy of the student's magnet or by Reseda High School.

Reseda High School ESLRS

In my class, students do much of their work in cooperative learning groups. I believe this type of activity helps students to learn from each other, and helps students achieve the Reseda High School ESLRS:

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|--------------------------|-----------------------|
| *Effective Communicators | *Critical Thinkers |
| *Self-Directed Learners | *Responsible Citizens |
| *Healthy Individuals | |

Contact and Website

A class website is maintained at ethingtonsclass.weebly.com. Non-SpringBoard assignments will be available here, as well as a calendar for the class. The best way of contacting me is via email at lhe7822@lausd.net.