**Algebra 2**

**Syllabus**

**Overview**

 This class is a curriculum following the Indiana State Standards for Algebra 2. Class will include review of Algebra 1 topics prior to each Algebra 2 topic. Most material in Algebra 2 is built upon previous work completed in Algebra 1

**Class Outline**

**Functions and Relationships**

 Recognize basic algebraic graphs

 Utilize function notation and the composition of functions

 Utilize function notation

 Parent functions and transformations (emphasized in this section, reviewed throughout the year)

**Linear Equations, Absolute Value and Inequalities**

 Review of graphing equalities and inequalities

Solve with graphing or with algebraic manipulation

 Use systems to solve word problems

 Interpret situations and project and extrapolate from data

**Linear Systems**

 Solving systems graphically and algebraically

 Solving systems of inequalities

 Linear programming

Matrices

 Data and matrix basics

 Algebra with matrices

 Inverse matrices and solving systems

**Quadratic Equations and Functions**

 Define, Plot and Solve

 Complex numbers

 Completing the square

 Graph, including transformations (Stretch/Shrink, Translate, Rotate and Reflect)

 Interpret situations and solve real world word problems

**Polynomials**

 Multiplications and Exponents (powers)

 Division and factoring (distributive property)

 Factoring polynomials and finding roots

 Graphing and solving by graphing

 Function and graphing relationships

 Fundamental Theorem of Algebra

 Interpret situations and solve real world word problems

**Logarithms and Exponents**

 Logarithm laws (arithmetic)

 Identify and create graphs

 Base conversion and base e

 Approximations through log properties

 Interpret situations and solve real world word problems involving exponents

**Rational and Radical Functions**

 Arithmetic with rational expressions

 Rational functions

 Solving rational equations

 Radical expressions and functions

 Solving radical equations

**Algebraic Fractions**

 Piecewise functions

 Transformation of functions (again)

 Operations with functions

 Inverse functions

**Conic Sections**

 Identification of conic sections

 Graphs of conic sections

 Solving nonlinear systems based on conic sections

**Sequences and Series**

 Arithmetic and Geometric Series

 Find specific terms and sums of terms

**Homework**

Homework will be assigned most class days. Complete homework solutions are available on-line. It is the student’s responsibility to complete and check their homework before class. Homework questions will be answered at the beginning of class for students who can show their work and describe any issues they had completing the problem. Occasionally homework may be assigned that is not from the textbook and is to be turned in for a grade.

**Assessment**

 Each day that homework is completed, a homework quiz will be given in class. Homework quizzes are typically one or two short skills based problems. Students who have completed their homework and had their questions answered should perform well on homework quizzes. Homework quizzes may not be corrected to improve a grade.

There will be a unit test after each of the above listed sections. Unit tests build up to a semester final. The purpose of unit tests is to demonstrate knowledge of the completed unit. If a student does not perform as well as planned, they may utilize a test correction procedure to further learn the problems that were wrong and receive half of the credit returned. A detailed test correction procedure is posted on-line. Most units will include a quiz. These quizzes

There will be a Final Exam for each semester. The final exams are cumulative for the entire semester.

 Semester grades are based on category percentages, and account for 80% of the total grade. The final exam is 20% of the total. The final exams are closed note exams. In general, each of the categories will be scored for the following percentages

 Tests and Quizzes 70%

 Homework Quizzes 30%

**Tutoring/Extra help**

 Students are encouraged to not fall behind in any math class, and Algebra 2 is no exception. End of day tutoring is offered many days after school. Students may also seek help before school by appointment or during resource.

**Calculators**

 A calculator is required for this class. Students MUST have a calculator for some homework assignments. Calculators should include logarithms and exponential functions. The recommended calculator is the TI 30.

 Some test will be completed with the aid of a calculator. Other tests will require a calculator. It is expected that a student will show up for these tests with their own working calculator. This is good practice for standardized tests like the SAT where half the math sections allow a calculator and half do not.

**Web Site**

 A web site is maintained to help provide students with information and files for studying. All power point files used in class will be posted on line. Homework will be announced in class, is available at the end of all powerpoint presentations that are posted on line, and is listed on RenWeb. I make a diligent effort to keep RenWeb up to date, but occasionally a schedule change is not reflected in RenWeb.

 The website is mrfronius.com.