Honors Algebra 2 & MYP Syllabus – Miramar High School

Course Title: **Honors Algebra 2**

Textbook: **"Algebra 2"** Glencoe, McGraw Hill

Course description:

Full year course: grade 9-10

Prerequisite: Placement from Grade 8 Algebra I or Geometry Grade 9

This course is for the mathematically talented student who desires an extensive and comprehensive treatment of

Algebra 2 topics and who intends to take the maximum units of high school math. Students will be expected to develop an in-depth understanding of the topics including functional analysis, and will be expected to draw relationships among the concepts studied. Use of a graphing calculator will occur through the course. Additionally, career-related topics will be presented. A good balance of activities, practice, and re-teaching will be included in lessons to assure that the material is covered and that students demonstrate learning. In addition, lessons will contain a variety of experiences in order to address the range of learning styles.

Grading System

90% Assessments

55% Exams - (Chapter Exams, MYP Projects)

35% Quizzes – (Mid Chapter Quizzes, Verbal Quizzes, MYP Portfolios)

10% Homework/ Classwork/ Participation

Materials needed for Honors Algebra II:

1. College ruled paper
2. A folder with pockets to organize worksheets you'll receive throughout the year
3. Mechanical Pencils and eraser
4. 3 different color highlighters
5. Blue, Blank & red inc pens
6. TI 83-84 Calculator/ Scientific
7. Glue & construction paper (requested for projects)

Expectations:

Students are expected to be prepared, on time, and ready to learn upon arrival to class on a daily basis. Tardiness will result in a detention with accordance to the school policy. 1st Warning, 2nd ½ hr detention 3rd 1 hr detention and 4th Referral. They are also expected to follow the code of conduct and teacher's directives and any adult request to the best of their ability. This course has a high level of rigor, students

must seek individual help when required. Afterschool tutoring is available and free of charge. MYP Students are to keep up a portfolio with samples of work and quizzes. This will be part of your evaluation.

Course Schedule: Scope and sequence
Approximate time frame Topic
First semester:

First marking period **********

CHAPTER 1 - SECTION 1.3,1.4,1.6 - 4 days

Solving Equations and Inequalities

• Simplify and evaluate expressions and formulas
• Classify and use properties of real numbers
• Solve equations, absolute value equations, inequalities and compound and absolute value inequalities

CHAPTER 2 - SECTION 0.1, 2.1, 2.2, 2.3, 2.4, 2.6 & 2.7 -

Linear relations and functions

• Analyze relations and functions
• State the domain and range of relations
• Identify, graph and write linear equations
• Draw scatter plots
• Graph special functions, linear inequalities and absolute value inequalities
• Graph families of graphs incorporating transformations
• Use a graphing calculator to graph functions and scatter plots

CHAPTER 3 - SECTIONS: 3.1, 3.2, 3.3, 3.4, 3.5

Systems of equations and inequalities

• Solve systems of linear equations. (Use graphing, elimination, and substitution to solve)
• Solve systems of inequalities by graphing
• Use linear programming to find maximum and minimum values of a function
• Solve a system of equations in three variables using substitution and elimination method
• Graph ordered triples and linear equations in space, and name the octant to which they belong
• Determine x-, y-, and z-intercepts and the trace lines for a given plane

CHAPTER 4 - SECTIONS 4.1, 4.5, 4.6

Matrices

• Organize data into matrices
• Solve problems using matrix logic
• Perform operations on matrices
• Transform figures on a coordinate plane
• Find the area of a triangle using determinants
• Solve systems of equations by Cramer's rule, inverse matrices, and augmented matrices
• Find the inverse of a matrix
• Use a graphing calculator to input and perform operations with matrices

Second marking period ***

CHAPTER 5 - SECTIONS: 5.1,5.2, 0.2, 0.3, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8.

Quadratic functions and inequalities

• Graph quadratic functions
• Derive the quadratic formula
• Solve quadratic equations by graphing, factoring, completing the square or quadratic formula
• Analyze graphs, use the graphing calculator
• Relate the solutions of a polynomial equation to the x-intercepts of a polynomial function
• Determine the nature of the roots of a quadratic equation
• Solve real-world applications using quadratic equations
• Graph and solve quadratic inequalities

CHAPTER 6 - SECTIONS: 6.1, 6.2, 6.3, 6.5, 6.6, 6.7, 6.8

Polynomial functions

• Evaluate polynomial functions and solve polynomial equations
• Use the Fundamental Theorem of Algebra, Rational Zero Theorem, and Complex Conjugate Theorem
• Write functions in quadratic form
• Solve equations using quadratic techniques
• Find all solutions to polynomial equations
• Graph polynomial and square root functions, approximate zeros, relative maximums/minimums
• Find factors and zeros of polynomial functions
• Find the composition of functions
• Determine the inverse of a function, graph both
• Prove if two functions are inverses
• Graph families of graphs incorporating transformations

• Use the graphing calculator to enhance instruction

Second Semester

Third marking period **********

CHAPTER 7 – SECTIONS: 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7

Inverse and Radical Functions and Relations

• Operations on Functions
• Graph rational functions – identify asymptotes & domain
• Solve direct, inverse and joint variation problems
• Solve rational equations – check for extraneous roots
• Solve rational inequalities
• Apply the methods for solving rational equations in problem solving
• Use graphing calculator to enhance instruction

CHAPTER 8 – SECTIONS: 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8

Exponential and logarithmic functions

• Simplify expression and solve equations involving variable exponents
• Convert from exponential to logarithmic form and vice versa
• Evaluate logarithmic expressions without a calculator
• Solve logarithmic equations
• Identify the characteristic and mantissa of a logarithm
• Find common logarithms and antilogarithms
• Define *e*
• Find natural logarithms of numbers
• Solve exponential equations using logarithms
• Use logarithms to solve real-world applications, including exponential growth and decay problems

CHAPTER 9 - SECTIONS: 91, 9.2, 9.3, 9.4, 9.5, 9.6.

Radical Functions and Relations

◊ Operations on rational expressions
◊ Graphing rational functions and reciprocal functions
◊ Variation functions
◊ Solving rational equations and inequalities

Fourth marking period **********

CHAPTER 10 - SECTIONS: 10.2, 10.3, 10.4, 10.5, 10.6, 10.7

Conic sections

• Use the midpoint and distance formula

• Write and graph equations of parabolas, circles, ellipses, and hyperbolas

• Identify conic sections

• Use conic sections for real-world applications

• Solve systems of equations and inequalities by algebraic techniques or graphing

• Create a design using equations of conic sections

• Use Green Globs computer software to enhance instruction Fourth marking period

CHAPTER 11 - SECTIONS: 11.1, 11.2, 11.3, 11.4, 11.5, 11.6

Series and Sequences (optional)

• Understand and use summation notation

• Find the parts of an arithmetic sequence and a finite geometric sequence

• Use formulas to find the sum of an arithmetic series, a finite geometric sequence, and an infinite geometric series

• Write and use sequence and series to solve real-world applications