Peters Township High School
Course Syllabus: ALGEBRA 2 HONORS

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| Course Information | Teacher Information |
| Course Length: Full YearClass Location: 212Teacher Website: <https://wentzelsworld.educatorpages.com/> | Name: Renee WentzelPhone: 724-941-6250 ext. 5340Email: wentzelr@pt-sd.org |

**Course Overview and Essential Skills**

This course is an in-depth study of the language, concepts, and techniques of Algebra that will prepare students to approach and solve problems following a logical succession of steps. This course is the foundation for future high school mathematics courses such as precalculus and calculus. Topics include the study of functions (polynomial, exponential, logarithmic, rational, radical, and trigonometric), probability and statistics. Real world applications are presented within the course content and a function's approach is emphasized. Essential skills developed include: solving equations using multiple methods, analyzing graphs of functions, organizing and analyzing data, recognizing patterns, and identifying conic sections.

**Course Textbook and Required Materials**

* Algebra 2, Holt McDougal, ISBN# 978-0-030-99576-7
* **Online textbook:** my.hrw.com Username: alg2honors1920 Password: wentzel
* Required daily materials: Textbook, Three-Ring Binder, Pencil, Graphing Calculator (TI-84 Plus)

**Course Outline of Material Covered**

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| Unit or Topic | Concepts/Skills/Resources | Timeframe |
| Foundations for Functions | Factoring, Sets of Numbers, Properties of Real Numbers, Square Roots, Simplifying Algebraic Expressions, Properties of Exponents, Relations and Functions, Function Notation, Exploring Transformations, Introduction of Parent FunctionsChapter 1 | 5 weeks |
| Linear Functions | Solving Linear Equations (Graphing Substitution, Elimination) and Inequalities, Proportional Reasoning, Graphing Linear Functions, Writing Linear Functions, Linear Inequalities in Two Variables, Transforming Linear Functions, Linear Regression, Absolute Value FunctionsChapter 2 | 3 weeks |
| Linear Systems of Equations | Solving Systems of Linear Equations and Inequalities, Linear ProgrammingChapter 3 | 3 weeks |
| Quadratic Functions | Graphing Quadratic Functions, Properties of Quadratic Functions, Factoring Quadratic Expressions, Solving Quadratic Equations (Graphing, Factoring, Quadratic Formula, Completing the Square), Complex Numbers and Roots, Solving Quadratic Inequalities, Quadratic Regression, Operations with Complex NumbersChapter 5 | 4 weeks |
| Polynomial Functions | Operations with Polynomials (Addition, Subtraction, Multiplication), Polynomial Division (Long and Synthetic), Factoring Polynomials, Finding Real and Complex Roots, Fundamental Theorem of Algebra, Graphing Polynomial Functions, Transforming Polynomial Functions, Polynomial RegressionChapter 6 | 3 weeks |
| Rational and Radical Functions | Variation Functions, Operations with Rational Expressions (Addition, Subtraction, Multiplication, Division), Rational Functions and Asymptotes, Solving Rational Equations and Inequalities, Radical Expressions and Rational Exponents, Radical Functions, Solving Radical Equations and InequalitiesChapter 8 | 4 weeks |
| Exponential and Logarithmic Functions | Exponential Growth and Decay, Inverse Functions, Logarithmic Functions, Properties of Logarithms, Solving Exponential and Logarithmic Equations, Natural Logarithms, Transforming Exponential and Logarithmic Functions, Exponential and Logarithmic RegressionChapter 7 | 4 weeks |
| Properties and Attributes of Functions | Multiple Representations of Functions, Piece-wise Functions, Transforming Functions, Operations with Functions, Inverse Functions, RegressionChapter 9 | 2 weeks |
| Probability and Statistics | Permutations and Combinations, Theoretical and Experimental Probability, Independent and Dependent Events, Compound Events, Expected Value, Measures of Central Tendency and VariationChapter 11 | 3 weeks |
| Sequences and Series | Sequences, Series and Summation Notation, Arithmetic and Geometric Sequences and SeriesChapter 12 | 3 weeks |
| Conics Sections | Identifying Conic Sections, Circles, Ellipses, Hyperbolas, ParabolasChapter 10 | 2 weeks |
| Matrices | Matrices and Data, Multiplying Matrices, Determinants and Inverses of 2x2 MatricesChapter 4 | 1 week |

\****Depending on the needs of the class or changes in the school year, the course outline is subject to change.***

***\*For a more detailed view of the course outline please visit the district website.***

**Website Reminder**

Absent a day? Get your assignment…homework is posted daily!

[**wentzelsworld@educatorpages.com**](http://www.teacherweb.com/PA/PetersTownshipHighSchool/RWentzel/)

**Teacher Grading Policy:**

* The grading scale for the district is as follows:

A 90 - 100

 B 80 – 89

 C 70 – 79

 D 60 – 69

 F 59 and below

The overall grade for a nine-week period will be determined by dividing a student’s total points by the overall total points and multiplying by one hundred.

* Each student’s grade will consist of the following:

Tests 50 - 100 points each

Quizzes 10 – 50 points each

Homework/ Homework Quizzes 5 - 10 points each

A midterm will be given in February and averaged into the 3rd quarter grade. A final will be given at the end of the year. It will be worth 1/9 of the overall course grade.

**Classroom Procedures and Expectations:**

* **Class Expectations:**
	+ Please use a pencil – no ink may be used for any graded work.
	+ Be prepared and organized for class. Bring the following daily:
		- Pencil and eraser
		- Book
		- Paper – non-perforated!
		- Three-ring binder to contain all notes, handouts, and assignments.

\*\* Notebooks are expected to be in order and neat!\*\*

* + - Graphing Calculator… **Graphing calculators are a requirement for this course.** If there is a problem with purchasing a graphing calculator, please see me ASAP, since many homework assignments will require the use of the calculators.
	+ Homework/Notes
		- Notes should be taken on a daily basis.
		- **Homework needs to be completed daily.** Make sure you give EVERY problem a good attempt. Incomplete assignments will result in lower homework grades.
	+ BYOD
		- When students are given the opportunity to use their own technology devices (iPads, laptops, smartphones, etc.) to support and enhance their learning (taking notes in class, participating in focus activities, placing homework assignments in their digital calendars, etc.), they must adhere to the BYOD Expectations and Guidelines and School Board Policy 5114.7 found in the Student Handbook or at [**http://www.ptsd.k12.pa.us/Downloads/5114\_7%20Student%20Acceptable%20 Use%20of%20Technology%20Resources%20District062512.pdf**](http://www.ptsd.k12.pa.us/Downloads/5114_7%20Student%20Acceptable%20%20Use%20of%20Technology%20Resources%20District062512.pdf)

### **Honor Code**

* + All academic work in this course follows the Academic Integrity Policy (#145) of the Peters Township School District.  Students are expected to maintain the Peters Township Honor Code:
		- As a student of Peters Township School District, I recognize the value of my own learning and pledge to maintain honesty and academic integrity in all that I do.  All work that I submit is my own.
	+ Upon submission of every assignment and assessment in this class, you are agreeing to comply and uphold the PTHS Honor Code.
* **Absences:**
	+ When absent, it is the student’s responsibility to:
		- **Get assignments posted on the homework page of my website.**
		- Get any missed notes from a RELIABLE friend.
		- Read the topic in the book with the examples that are provided.
	+ Homework:
		- Hand in the assignment that was due the day you were absent as soon as you come into class.
		- Hand in any assignments that were given on the day you were absent on the following day at the beginning of class.
		- If you are absent due to a field trip or an early dismissal, you are responsible to hand in any assignments due that day before you leave school.
	+ Tests/Quizzes:
		- If you were absent on the day of an announced test/quiz, but you were present on the day(s) that it was announced, you will be expected to take the test/quiz on the day you return to class, unless you have been absent for 2 or more days.
		- If you are absent due to a field trip or early dismissal on a test day, you are expected to take the test prior to your departure or at the end of the day when you return.
		- It is your responsibility to arrange a time to make-up any quizzes/tests, if you do not want to miss class time to take the quizzes/tests.
* **Class Rules & Discipline:**
	+ Class Rules:

1. Follow directions the first time given.

2. Come to class on time and prepared. **Begin working on the Focus Activity.**

3. Do not talk while I am talking or while someone else in class is talking.

4. Keep hands, feet, and objects to yourself.

5. Remain in your seat until dismissed. The bell does not dismiss you.

* Consequences:

First Offense: Warning

Second Offense: Phone call/email to parent/guardian

Third Offense: After school detention

Fourth Offense: Discipline referral to assistant principal

Cell phone and other electronic device usage (calls, texts, photos, social media, etc) are not permitted unless the student has received my permission.

**\*\*A cell phone violation during any assessment will result in a failing grade (0%) on that assessment.\*\***