**Algebra 2 Syllabus**

**Academy for Technology and the Classics 2016-2017**

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**Textbook:** The textbook being used is *Prentice Hall Algebra 2* by Pearson.

**Course Description:** This course is designed to help make sense of the mathematics you encounter in and out of class each day. As you are learning important mathematical principles, you will also learn how the principles are connected to one another and to what you already know. You will learn to solve problems and learn the reasoning that lies behind your solutions. Each chapter begins with the “big ideas” of the chapter and some essential questions that you will learn to answer. Through this question-and-answer process you will develop your ability to analyze problems independently and solve them in different applications. Your skills and confidence will increase through practice and review.

**Course Objectives:** The goal at the end of this course is for you to be able to:

1. Find the equivalent expressions, rewrite, and solve expressions by rewriting.
2. Solve equations, inequalities, absolute value equations and inequalities.
3. Investigate and study linear functions and other functions.
4. Model and transform other parent graphs and functions.
5. Solve systems of equations using tables, graphs, and algebraically.
6. Use systems of equations to solve problems.
7. Solve systems of equations with three variables.
8. Transform quadratic functions.
9. Solve quadratic equations by factoring, graphing, completing the square, and using the quadratic formula.
10. Investigate and study polynomial functions and equations, including the Fundamental Theorem of Algebra and the Binomial Theorem.
11. Rewrite roots and radical expressions and be able to solve square root and other radical equations.
12. Write equations of exponential functions and use logarithms to solve exponential equations.
13. Add, subtract, multiply, and divide rational expressions and solve rational equations.
14. Identify arithmetic, geometric, and infinite series.
15. Explore conic sections: Parabolas, circles, ellipses, hyperbolas.
16. Introduce probability and statistics.
17. Add, subtract, and multiply matrices.
18. Find the determinants and inverses of matrices and use them to solve systems, perform geometric transformations with shapes and vectors.
19. Explore periodic data and use the unit circle to study the sine, cosine, and tangent function.
20. Use trigonometric identities and solve trigonometric equations using inverses.
21. Apply the Law of Sines and Law of Cosines.

**Course Outline\***

**1st Semester**

Week 1 Expressions, Equations, and Inequalities

Week 2 – Week 3 Functions, Equations, and Graphs

Week 4 – Week 5 Linear Systems

Week 6 – Week 9 Quadratic Functions and Equations

Week 10 – Week 12 Polynomials and Polynomial Functions

Week 13 – Week 15 Radical Functions and Rational Exponents

Week 16 – Week 18 Exponential and Logarithmic Functions

**2nd Semester**

Week 1 – Week 3 Rational Functions

Week 4 – Week 5 Sequences and Series

Week 6 – Week 7 Quadratic Relations and Conic Sections

Week 8 – Week 9 Probability and Statistics

Week 10 – Week 12 Matrices

Week 13 – Week 15 Periodic Functions and Trigonometry

Week 16 – Week 18 Trigonometric Identities and Equations

**\*Outline may change at the teacher’s discretion\***

**Classroom Rules**

* Do things that support my teaching and your learning.
* Only positivity can enter this classroom, leave negativity at the door.
* Be respectful. Be responsible. Be here, be on time, and be prepared.
* Never stop trying, and always do your best!

**Course Requirements:**

* Students must be self-motivated, punctual, and disciplined as deadlines must be met.
* Students need to study and practice examples in the text to enhance their awareness of the content.
* All students are required to keep a notebook/binder for notes, in-class assignments, and bell work, etc.
* Notes will be taken often except on days of quizzes or tests.
* Notebook checks will be done periodically as often as the teacher requests, which can be as often as every week or as seldom as every unit.
* Homework, tests, quizzes, and any other assignment that will be turned in for a grade should be done in **pencil.**
* Every student is required to show all of their work or give an explanation written in complete sentences for each problem on an assignment. If the student chooses not to do either, the assignment will not receive full credit.

**General Classroom Procedures:**

Procedure for entering the classroom:

1. Students will walk into the classroom quietly.
2. Students will go straight to their seat and sit down.
3. Students will prepare themselves for the class session. (For example, take out their notebooks and writing utensils, sharpen their pencils, if necessary, etc.)
4. Students will begin working on their bell work quietly.

Procedure for taking attendance:

1. Students will have assigned seats.
2. Students must be in their seats by the time attendance is taken.
3. If a student is not in their seat when attendance is taken, that student will be marked absent.

Procedure for labeling homework assignments:

1. First Name Last Name
2. Class Title, Class Period
3. Date Homework was Assigned
4. Date Homework is Due
5. Homework Assignment Title
6. Page Number(s) and Problem Numbers

Procedure for turning in homework:

1. After student have completed the bell work, if there is homework that is due that day, they should be taking it out for review.
2. There will be a few minutes set aside to answer “big” questions on the homework but it will not take up a considerable amount of time.
3. Homework will be stacked neatly and passed from each table from the left side of the classroom to the right side of the classroom. There is no need for students to get out of their seat to turn in their homework.
4. The teacher will collect the homework from the table on the right side of the classroom.
5. Also, none of the papers that are turned in should have any frayed edges. Cut the edges off of these papers before class or use loose leaf paper to eliminate any mess.

Procedure for restroom breaks:

1. Only one student is allowed outside the classroom at any given time.
2. Students will not be allowed to use a pass during the first 10 minutes or the last 10 minutes of class.
3. Passes will not be given during direct instructional time.
4. In order to receive a hall pass, the student must leave their phone (Or if they do not have a phone, something else as collateral).
5. Students will completely fill out the hall pass on the clipboard, including name, date, time, and destination, before it will be initialed by the teacher as permission to leave the classroom.
6. The teacher must not be interrupted during direct instruction so students must wait for appropriate times to ask for permission (For example, during independent practice time or while small groups are working on activities, etc.).
7. The student must take the clipboard with them as their hall pass to leave the classroom.

Procedures for exiting the classroom:

1. Students will remain working until the last 5 minutes of class, when the lesson is brought to a close.
2. One minute before the bell rings, students will then begin to clean up their areas and pack up their materials.
3. Students will remain in their seats until the teacher dismisses them.

**Tardy Policy**

If you are tardy to first period, you must check in with the office to receive a pass. The front office will determine whether a tardy is excused or unexcused. If a student is tardy to any class, they will be assigned lunch detention. Excessive tardiness will lead to more severe consequences, like I.S.S. (In-school suspension).

**My Grading Philosophy**

I want my students to be able to reflect the learning process in their work and what they accomplish in my class be being able to redo tests and quizzes for a better grade, excluding the semester exam. Students will be able to correct a test in order to show mastery of the concepts. Correcting and retaking tests is always at the teacher’s discretion. Assignments will be weighted as follows:

 In-class assignments (notes, practice, bellwork, etc.) 20%

 Homework (hw from book, handouts, including projects) 30%

 Tests/Quizzes 50%

Classes are also weighted by averaging the 9 weeks grade from each quarter with the semester exam. This is shown below:

 1st Semester 2nd Semester

 Q1 – 40% Q3 – 40%

 Q2 – 40% Q4 – 40%

 Semester Exam – 20% Semester Exam – 20%

**Late Assignment Policy**

Every assignment has a due date. For Mathematics, the due dates are on Tuesday and Thursday. Assignments not handed in by the due date will not receive full credit. The highest grade that can be attained after an assignment is late is a 60%. Late assignments will no longer be accepted one week after the date that the assignment was due.

Work can be turned in late, especially for projects, if prior arrangements have been made. These arrangements must be communicated and agreed to 24 hours before the day that the assignment/project is due. However, this cannot become a common practice or extensions will not be granted in the future.

**Grading Scale**

100 – 90 A

89 – 80 B

79 – 70 C

69 – 60 D

Below 60 F

**Materials/Supplies for class**

1 spiral notebook (notes and classwork) – at least 3 subject

Loose leaf paper for homework assignments

Pencils with erasers

Graph paper

Graphing calculator (TI-84)

1 package of highlighters **(optional)**

**Online Resources**

* Khan Academy: <https://www.khanacademy.org/>
* Online graphing calculator: <http://www.desmos.com>
* Online textbook resources: <http://www.poweralgebra.com>

Looking forward to a fantastic year!

Please return bottom portion of the syllabus to the teacher.

I have read the syllabus with my child and I understand if I have any questions I can contact the teacher at any time.

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Print Student’s Name

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Print Parent/Guardian’s Name

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Parent/Guardian’s Signature Date

Best means of communication:

Phone:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ E-mail:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_