**Precalculus Syllabus**

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

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**Textbook:** The textbook being used is *Advanced Mathematical Concepts: Precalculus with Applications* by Glencoe.

**Course Description:** This course of study is for students who are well-prepared for advanced mathematics and who will probably go on to take another mathematics course. Previous experience with trigonometry is helpful, but not a prerequisite. *Glencoe Advanced Mathematical Concepts* brings mathematics to life through Real World Applications central to students’ own experiences through mathematical situations involving consumer topics and citizenship. Modeling real-world data using mathematics is interwoven throughout the text. You will examine data such as population growth. You will plot points, look for patterns and trends in graphs, and write linear, quadratic, polynomial, exponential, logarithmic, and trigonometric equations to model data. These graphs and equations are then used to predict the outcomes of the particular situation. Graphing calculators provide powerful support in the modeling of data.

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

1. Review important concepts from previous courses, which include: linear relations and functions, systems of linear equations and inequalities, and the nature of graphs.
2. Determine roots of polynomial equations.
3. Solve quadratic, rational, and radical equations and inequalities.
4. Convert decimal degree measures to degrees, minutes, and seconds, and vice versa.
5. Solve triangles.
6. Find the values of trigonometric functions.
7. Change from radian measure to degree measure, and vice versa.
8. Find linear and angular velocity.
9. Use and draw graphs of trigonometric functions and their inverses.
10. Find the amplitude, the period, the phase shift, and the vertical shift for trigonometric functions.
11. Write trigonometric equations to model a given situation.
12. Use reciprocal, quotient, Pythagorean, symmetry, and opposite-angle identities.
13. Verify trigonometric identities.
14. Use sum, difference, double-angle, and half-angle identities.
15. Solve trigonometric equations and inequalities.
16. Find the distance of a point to a line.
17. Add, subtract, and multiply vectors.
18. Represent vectors as ordered pairs or ordered triples and determine their magnitudes.
19. Write and graph parametric equations.
20. Graph polar equations.
21. Convert between polar and rectangular coordinates.
22. Add, subtract, multiply, and divide complex numbers in rectangular and polar forms.
23. Convert between rectangular and polar forms of complex numbers.

**Course Outline\***

**1st Semester**

Week 1 – Week 3 Linear Relations and Functions

Week 4 – Week 6 Systems of Linear Equations and Inequalities

Week 7 – Week 9 The Nature of Graphs

Week 10 – Week 12 Polynomials and Rational Functions

Week 13 – Week 15 The Trigonometric Functions

Week 16 – Week 18 Graph of Trigonometric Functions

**2nd Semester**

Week 1 – Week 3 Trigonometric Identities and Equations

Week 4 – Week 6 Vectors and Parametric Equations

Week 7 – Week 9 Polar Coordinates and Complex Numbers

Week 10 – Week 12 Conics

Week 13 – Week 15 Exponential and Logarithmic Functions

Week 16 – Week 18 Sequences and Series

---*Additional content, if time permits:*

* *Combinatorics and Probability*
* *Statistics and Data Analysis*
* *Introduction to Calculus*

**\*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, bell work, etc.) 20%

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

Tests 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, homework will only be assigned 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>
* Glencoe online: <http://www.amc.glencoe.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:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_