**Pre-Calculus A & Pre-Calculus B**

**Syllabus, Course and Classroom Information**

**Course:** Pre-Calculus A & B **Year:** 2016-2017

**Instructor:** Mr. Grant – [bgrant@aaechighschools.com](mailto:bgrant@aaechighschools.com)

**Website**: www.bgrantaaechighschools.weebly.com ; Website can also be found by going to the teacher page of AAEC.

**Office Hours:** *Thursday* 3:00-4:30 pm *or by appointment* barring previously scheduled meetings

**Text Book: Precalculus Graphical, Numerical, Algebraic Eighth Edition**. Franklin D. Demana, Waits, Foley, Kennedy. Pearson Education Inc., USA (2011)

**ISBN:** 978-0-13-136907-8

**Meeting:** 5 times per week for 1 hour instruction periods

**Pre-requisites:** Mastery of Algebra 1, 2, Geometry 1, 2 and Algebra 3, 4 concepts

**Course Description:**

This course adds more depth, detail, and rigor upon old skills and concepts from Algebra I, Geometry, and Algebra II as well as introducing new concepts and skills culminating in a brief foray into actual Calculus process and theory.

The student will become familiar and proficient with functional relationships and how to *model*, *graph, solve* algebraically, solve with electronic assistance, and *transform* those relationships. Students will be able to *translate* from literal forms to algebraic forms (word problems) and *re-express* *(MGSTTR)* them.

Other previously covered topics which will be expanded upon and covered in more depth include: Properties of Math; Modeling, Graphing, Solving, Translating, Transforming, Re-expressing *(MGSTTR)* Linear, Quadratic, and Exponential relationships; Combinatorics; Statistics; Probability; Trigonometric relationships; Matrices; Sequences, Series, Rational exponentials, Inverse functions, Fundamental theorems of Algebra, Varieties of Polynomials, Logarithmic functions, Periodic functions, Trigonometric Identities and Equations, more rigorous coverage of Matrices, and Conic Sections.

New concepts that will be covered will include: Vectors, Polar equations, Parametric equations, Limits, Derivatives, and Integrals.

The goal is for the student to be able to (MGSTTR) literal situations in an algebraic method in order to interpolate and extrapolate useful information. The concepts and skills learned in this course will be used in all future math classes, science classes, and can be used across a variety of disciplines.

This course is designed to help you become a critical thinker and reader, as well as a creative problem solver. You will be expected to do the assigned practice problems each day to become proficient in the highest forms of Algebra as well as the concepts and practices leading to Calculus.

**Materials Needed:**

**Three-ring binder** – You will need to keep your notes for the final and for the following semester. Do not learn and then dump the notes and learning as useless for the future. The concepts in mathematics continuously build on and use previous concepts.

**1 Ream** of loose leafed college ruled paper (no spiral notebooks)

Many **Pencils**  Pens are ok too (Colored pens for notes NOT red)

Ruler Planner

**TI-84** calculator **is highly** recommended due to its use in so many future classes (pre-calc, calculus, physics, chemistry, biology, business mathematics, statistics, psychology, economics, astronomy, …).

Whiteboard Dry Erase Markers

Coming to class *unprepared* with no paper, pencil, or problem set is *making a decision* to *not do well* in this course!

**Classroom Expectations and Policies:**

Students will be able to demonstrate a clear and reliable understanding of key content areas. It will not be sufficient to get the right answer on the final exam (although this will be required, as well). Each student’s grasp of the content requirements will also be observed in classroom discussions, computer lab activities, problem sets, classroom participation and attendance. Students must achieve a grade of ***C*** or better in this course in order to receive credit and move on to the next level of mathematics. Grades are designed to reflect the level of proficiency a student demonstrates in the following three areas

*Behavior* and comportment in class: Be respectful and attentive to the learning environment.

*Note-taking:* Take comprehensive notes and copy them over as well as creating 1 page of crib notes for each chapter.

*Problem sets:* Do the assigned work legibly while showing all the components of a good problem set.

*Timeliness:* Get the work done on time and finish the assessments in the allotted time.

**Grading:** Grades are cumulative and based on the following breakdown:

25% - Final Exam (Those students who have achieved at least 95.0% are excused from the final)

5% - Mid-Term Exam (Post-Test given in December, but will count as the Mid-Term grade)

25% - Chapter Tests

20% - Quizzes

5% - Notes/Participation/Project

20% - Problem Sets

The following cutoffs will be used to determine your final letter grade:

-89.5% **A**

89.4%-79.5% **B**

79.4%-69.5% **C**

Below 69.5% **F**

Question scoring rubric for free response questions:

4 pts for completely correct with work

3 pts for incorrect with minor arithmetic or copy mistake

2 pts for correct without work or incorrect with concept mistake

1 pt for courageous attempt

0 pt for blank answer

***Note:*** A correct answer without any shown work is only worth 2 out of 4 points. Show your work for full credit.

***Dropped scores:*** 1 problem set per chapter, 1 test per semester, 1 quizzes per semester will be dropped if participation grade is over 80%. The dropped scores will not take effect in Synergy until well after midterms.

***Grade View:*** In order to keep everyone informed of their progress**,** you can access your student's grade on-line via Synergy I update the grades at least weekly. So, if you do not see a grade for an assignment check back in a day or so or leave me a message via email. I will get back to you within 2 business days.

Work that has not been graded will not show up in Synergy.

Work that is too late will have a 0.

**Problem Sets / Homework:**Problem sets are assigned daily and should be **completed by the next day**. We go over the problem sets first thing during lecture, so there is not a viable reason to not turn in the problem sets on time. It is imperative that problem sets be done daily. Mathematics is a language and languages need to be practiced every day. School Policies will be followed concerning late assignments.

**Problem Sets / Homework: (Continued)**

Assignments are generally worth 20 points for each section or problem set. All 8 problems will be graded for accuracy. Work should be neatly written, stapled, and each assignment easily identifiable or no credit will be given. 2 points per problem, 1 point for correct heading, 3 points for legibility and neatness.

Late work: 1 day late -15%, 2 days late -30%, 3+ days late NO Credit. If a student ***communicates with the teacher before the deadline,*** it is most probable that extra time will be given on a case by case basis.

There will be 8 problems on the average problem set, 4 odd numbered with answers for the student check in the back of the book, and 4 even numbered problems. 1 point of extra credit will be given if half of all odd numbered problems are also completed and 2 points of extra credit will be given if all of the odd numbered problems are also completed.

**Tests**

Tests will be given, at the very least, at the end of every chapter and are cumulative. Do not throw away or forget old material. Remember to show work: **NO WORK = NO CREDIT!** *You will need to come in* ***on your own time*** *to make up a missed exam and it will need to be done in a timely fashion,* ***within 1 week*** *of the original test date.* I require you to make an appointment so that I can have the materials ready.Tests range from 8 - 20 questions and should be finished in 2 class periods. If more time is needed, no more than 1 extra class period will be given and the student must **make the time on his own** to complete the test. 1 page single sided of **handwritten** notes are allowed on each assessment. Because 1 page of notes is allowed, the test review is comprehensive, partial credit is given, and test retakes are allowed, there will not be any extra credit on tests.

**Test Retakes**

Chapter tests may be retaken if a student has received below an 80%. Test retakes must be completed by the next chapter test and *on the student’s own time*. The instructor will not issue reminders to the student. It is the student’s responsibility to request and make the time to retake a chapter test. The new test score will be averaged with the old test score. The average will replace the old grade if it is an improvement.

**Quizzes**

Quizzes will be given every 2-3 sections. These will be short 4-8 question quizzes. Quizzes **cannot** be retaken. Quizzes will be scored with 2 points per multiple choice question and 4 points per free response question.

**Notes/Participation:**

Taking notes is integral to retaining and organizing learning. Follow the note taking format provided in class. I will allow the use of one page of notes on tests and quizzes. If you miss class, it is ***the student’s responsibility*** to get the notes from another student or come in after school and copy mine.

Participation is calculated by asking *academic* questions in class, putting solutions on the board, and helping other students.

**Absence:**

All students are required to attend school. If an absence occurs, the student will have *one day to make up* any missing work if the absence is excused. If the student misses more than one excused day, he/she must discuss with the teacher concerning a timetable to make up missing work. The student will be expected to hand in any work that was due on the date missed as soon as the student returns to school.

**Absence does not excuse a student from the material, work, or assessments.**

**Classroom Consequences:** With breaking rules, there are always consequences. If you choose to break a rule, you may receive one of the following consequences:

1. Warning and points deducted from your house

2. Contact home

3. Conference with guardian

4. After school services

5. Office referral

**Classroom Procedures:** There is a certain way to do things in the classroom. We will go over these during the first week. If you are not sure of a procedure, ask the teacher. Procedures will cover how to hand in papers, where to find daily assignments, what to do in an emergency, and others.

**Bathroom / Hall Passes:** No passes will be given. **Use the sign out** sheet next the door. **One student** at a time may be out of the room. Excessive use of this privilege will result in the privilege being taken away. Bathroom breaks will be in between class time only. Use your time wisely.

**Rules:** The AAEC Paradise Valley rules outlined in the Student Handbook **supersede** all other rules.

* Respect others, the instructor and yourself.
* ***Do not talk while another person is speaking especially the teacher.*** The teacher is automatically granted the floor to speak at any time. You cannot learn effectively if you are speaking instead of listening.
* No food or drink allowed in class except water. All food **must** be disposed of before entering the class. This is a school rule.
* No sunglasses or hats worn in class. Any items worn after the start bell will be held to the end of the day. Please comply with the school dress code.
* ***No cell phones or electronic devices allowed* after the bell has rung***.* No texting, snap chat, Instagram, browsing the web, listening to music, etc. ***This is school policy***. **Any visible or audible** electronic devices after the bell has rung will be confiscated and turned into the office. (This has been a significant problem in the past. The ease of use of electronic devices in the past has prevented and damaged the learning environment of the classroom).
* **Have** pencil, paper, and any other materials ready at the start of the period.
* ***If it is written on the board you should write it in your notes***.
* Be respectful. Be responsible. Be ready.

**Pre-Calculus A:** Pre-Calculus is the equivalent of MAT 187. Chapters 4,5,6 covers most of the material of MAT182

1. Prerequisites – Real Numbers, Cartesian Coordinate Plane, Linear Equations, Lines in a Plane, Solving Equations, Complex Numbers, Solving Inequalities
2. Function, Equation, Graphs – Modeling, Properties, Twelve or more basic functions, Composite, Parametric, Inverse functions, Transformations
3. Polynomial, Power, and Rational Functions
4. Exponential, Logistic, and Logarithmic Functions
5. Trigonometric Functions
6. Analytic Trigonometry

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**Pre-Calculus B:** Pre-Calculus is the equivalent of MAT 187. Chapters 4,5,6 covers most of the material of MAT182

1. Applications of Trigonometry – Vectors, Parametrics, Polar
2. Systems and Matrices – In depth look at Matrix Math
3. Analytic Geometry -- Conics
4. Discrete Mathematics – Combinatorics, Probability, Sequences, Series, Mathematical Induction, Statistics
5. Limits, Tangents, Derivatives, Integrals – Truly getting ready for MAT 210,220

**Please sign this page and return.**

Signing of this document verifies that you have been informed that the 2016-2017 Class Procedures and Grading Policies for the Pre-Calculus A,B Math class. If you need any further information or assistance, please feel free to e-mail (bgrant@aaechighschools.com).

* In order to keep everyone informed of their progress**,** you can access your student's grade on-line via Synergy. I update the grades weekly. So, if you do not see a grade for an assignment check back in a day or so or leave me a message via email. I will get back to you within 48 hours.
* Please have each student create an account and sign in to Synergy.

Classroom Policies:

* Be prepared with writing utensils, paper, problem set, and good attitude
* No electronic devices visible or audible during the class time (no texting, music, snap chat,…)
* Do not speak when the teacher is speaking or if another student has the floor.
* Do not eat or bring food into class.
* Comply with the school dress code.
* Self-advocate for retake opportunities and assistance with learning.

Have a wonderful and successful year!

Mr. Brad Grant

**Student Name (Please Print):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Student Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Name of Parent (Print Please):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Parent Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Student email: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Parent email: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Due back by Friday August 12**