Sharyland High School

Department of Mathematics

Instructor's Information:

Instructor Name: *Miss Edith Lerma*
Office Location: *SHS - 421*
Telephone #: *956-580-5300 Ext 1432*
Conference: *M-F (8:00-9:30 am)*

Course Information:

Course Name: *Pre-Calculus*
Room Location: *SHS - 421*

Course Description:

In Pre-Calculus, students continue to build on the k-8, Algebra I, Algebra II and Geometry foundations as they expand their understanding of mathematics. Students will use functions, as well as, symbolic reasoning to represent and connect ideas in geometry, probability, statistics, trigonometry and calculus to model physical situations. Finally, students will use a variety of representations (concrete, pictorial, numerical, symbolic, graphical, and verbal), tools and technology (including, but not limited to calculators with graphing capabilities, data collection devices and computers) to model functions and equations and solve Real-Life problems.

Course Objective:

Pre-Calculus students will acquire and demonstrate knowledge of concepts, definitions, properties and applications of topics listed below. The main goal of Pre-Calculus is to help students obtain critical thinking and decision making skills that will allow them to connect concepts, develop computational skills and learn strategies needed to solve mathematical problems.

Evaluation:

Major Assignments…….60%
Minor Assignments…….40%

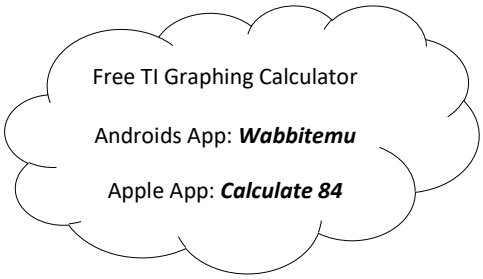
Major Assignments consist of…….Exams, Reports, Research Papers, Projects/Presentations, Essays, etc.

Minor Assignments consist of…….Daily Classwork/Practices, Homework, Quizzes, Lab Work, Binder/Notebook Checks, etc.

****See District Grading Procedures****

- All exams are timed and are in-class closed-book exams!
- Exam results will be given within one week from the exam day.
- Use of cell phones, cell phone calculators, iPod or electronics is not allowed during exam or class time. (BYOD is a privilege, not a right!)

Required Material:
College Ruled Notebook Paper
Pencils (Mechanical) – No pen allowed on any assignments!
Block Eraser
…any other material needed throughout the year
***homework will be sent home and graphing calculator may be needed



**These items will be used on a daily basis and are necessary for success in the classroom. The student needs to be responsible for arriving to class prepared to learn and work. Points will be deducted from that day's assignment if student arrives unprepared.*

Classroom Rules

- NO EDIBLES OR DRINK in the classroom
- BE ON TIME
- PROFANITY will NOT be TOLERATED
- PARTICIPATION is not an option
- No doing homework for other classes
- RESPECT yourself and others

Tardiness and Attendance

There will be independent, partner and group activities throughout the school year. So, the presence of each student is necessary. Students need to be in class on time, otherwise students will lose out on important information and an education. If absent, the student is responsible for picking up his/her missed assignment(s), attain notes and complete assignment(s).

Cheating or Copying

Cheating will ABSOLUTELY NOT be tolerated. At any time you are caught cheating by ANY TEACHER, an automatic ZERO will be given for that assignment WITHOUT the opportunity to make up the grade. Consider this your WARNING. Cheating will result in a PARENT-TEACHER conference if necessary.

**Please be aware that you will be required to use the internet and other computer software's for some of the class assignments and/or activities. If you don't have computer access at home, feel free to stop by before or after school to the library. (Hours: M-R 7:30am-4:30pm, F 7:30am-4pm).*

Tutorial

I will be available as much as possible to help you be successful in this course. This includes before school and after school. I expect to see notes on the topic you need help with before approaching me for assistance. Take advantage of this time. If you do not understand something in class, I am more than happy to try to explain in another way. Please ask before it is too late!

Homework

Homework will be assigned daily. Failure to corporate by turning in an assignment on the due date will result in *a zero*!

Required Textbook & Resources

Pre-Calculus Enhanced with Graphing Utilities 6th Edition – *Sullivan, Michael*

Students are asked to come to the board and present problems, discuss different techniques and answer questions from instructor and other students. The term project will address all the Exemplary Education Objective for the math core components.

Pre-Calculus Pre-AP
Course Outline

Chapter 1	**SECTIONS**
Graphs	1.1 The Distance & Midpoint Formula; Graphing Utilities; Introduction to Graphing Equations 1.2 Intercepts; Symmetry; Graphing Key Equations 1.3 Solving Equations Using a Graphing Utility 1.4 Lines 1.5 Circles
Chapter 2	**SECTIONS**
Functions & Their Graphs	2.1 Functions 2.2 The Graph of a Function 2.3 Properties of Functions 2.4 Library of Functions; Piecewise-defined Functions 2.5 Graphing Techniques: Transformations 2.6 Mathematical Models: Building Functions
Chapter 3	**SECTIONS**
Linear & Quadratic Functions	3.1 Linear Functions & Their Properties 3.2 Linear Models: Building Liner Functions from Data 3.3 Quadratic Functions & Their Properties 3.4 Build Quadratic Models from Verbal Descriptions and from Data 3.5 Inequalities Involving Quadratic Functions
Chapter 4	**SECTIONS**
Polynomial & Rational Functions	4.1 Polynomial Functions & Models 4.2 The Real Zeros of Polynomial Functions 4.3 Complex Zeros; Fundamental Theorem of Algebra 4.4 Properties of Rational Functions 4.5 The Graph of a Rational Function 4.6 Polynomial & Rational Inequalities
Chapter 5	**SECTIONS**
Exponential & Logarithmic Functions	5.1 Composite Functions 5.2 One-to-One Functions; Inverse Functions 5.3 Exponential Functions 5.4 Logarithmic Functions 5.5 Properties of Logarithms 5.6 Logarithmic & Exponential Equations 5.7 Financial Models 5.8 Exponential Growth & Decay Models 5.9 Building Exponential, Logarithmic & Logistic Models from Data
Chapter 6	**SECTIONS**
Trigonometric Functions	6.1 Angles and Their Measure 6.2 Trigonometric Functions: Unit Circle Approach 6.3 Properties of the Trigonometric Functions 6.4 Graphs of the Sine and Cosine Functions 6.5 Graphs of the Tangent, Cotangent, Cosecant and Secant Functions 6.6 Phase Shift; Sinusoidal Curve Fitting
Chapter 7	**SECTIONS**
Analytic Trigonometry	7.1 The Inverse Sine, Cosine, and Tangent Functions 7.3 Trigonometric Equations 7.4 Trigonometric Identities

Chapter 8	SECTIONS
Applications of Trigonometric Functions	8.1 Right Triangle Trigonometry; Applications 8.2 Law of Sines 8.3 Law of Cosines 8.4 Area of a Triangle 8.5 Simple Harmonic Motion; Damped Motion; Combining Waves
*****If time permits, then the following lessons will be covered*****	
Chapter 9	**SECTIONS**
Polar Coordinates; Vectors	9.1 Polar Coordinates 9.2 Polar Equations & Graphs 9.3 The Complex Plane; De Moivre's Theorem
Chapter 12	**SECTIONS**
Sequences; Induction; the Binomial Theorem	12.1 Sequences 12.2 Arithmetic Sequences 12.3 Geometric Sequences; Geometric Series
Chapter 14	**SECTIONS**
A Preview of Calculus: The Limit, Derivative, & Integral of a Function	14.1 Finding Limits Using Tables and Graphs 14.2 Algebra Techniques for Finding Limits 14.3 One-sided Limits; Continuous Functions 14.4 The Tangent Problem; The Derivative 14.5 The Area Problem; The Integral