

Course Syllabus: Pre Calculus

Instructor: Wendy Heckathorn

Email: wheckathorn@gvsd.net

PreCalculus extends the development of algebra and functions. We will be covering exponential and logarithmic functions, trigonometry and analytic trigonometry, matrices and determinants, systems of equations, polynomial and rational functions, conic sections and sequences and series.

Prerequisite: 2 semesters of Algebra 2

MATH CLASS EXPECTATIONS

1. **Class Time:** Be on time. You should be in your seats and have homework turned in when the bell rings. You should come to class prepared and ready to work. This means that you have the necessary materials for class such as your textbook, note paper, a pencil to write with, etc. with you. During class you are expected to pay attention and work on the given assignment or test. This is not a time to work on other classes.
2. **Seating Arrangement:** You will have an assigned seat. It is your responsibility to sit in your assigned seat and stay in your assigned seat for the class period. Students will not be allowed to move around and into another student's space. Seating arrangements will change periodically.
3. **Absences:** All missed homework/tests must be made up by two days after the absence. I will do my best to make sure you receive the missed assignment when you return, but it will ultimately be your responsibility to contact me for information regarding the missed assignment or to check the online gradebook to have it completed by the designated time period. The two day rule is enforced so that you will understand the new concepts that are taught daily and not fall behind.
4. **Class Work:** It is expected that you do your own class work. Copying another student's work is cheating and will result in disciplinary action per the Student-Teacher handbook. You should be able to explain the process used to solve every problem verbally upon request. You are allowed to correct classwork.
5. **Class Work Due Dates:** All assignments are due the next school day proceeding the day the assignment is given unless you are told otherwise in class. Time is given during class to work on daily assignments. Effective use of your class time should allow assignments to be completed or nearly completed by the end of class. **If you are taking this course for college credit, due dates will correspond to the CWI course syllabus.**

6. **Late Work:** Late assignments will receive a 20% score deduction if turned in the same week the assignment is due. After that period, late work will receive a 30% score deduction.

Assignments that are not turned in will receive an incomplete which will be computed as a zero in the gradebook. No unit assignments will be accepted after the date of the corresponding unit assessment. **If you are taking this course for college credit, no late work will be accepted.**

The assignment schedule is on the CWI course syllabus.

7. **Quizzes:** A short quiz will be given each Monday on the concepts of current study. Quizzes are used to give immediate feedback to students.

8. **Tests:** Tests are given at the end of each unit to assess student learning. Tests cannot be corrected. If you are caught cheating on a test, it will be taken away from you, and you will receive a zero. Do not even give the impression that you are or will be cheating; if I believe that you are cheating, your test will be taken away and given a zero. Both your parents and the principal will be notified if you are caught cheating.

9. **Grading:** Grading is done on a weighted scale through daily assignments, tests, and the semester test. I expect work to be completed on time. You can help yourself succeed by keeping up on daily assignments and completing your work on time.

Weighted Scale

Homework	15%
Quizzes	20%
Tests	45%
Semester Test	20%

Grading Scale

A	90% - 100%
B	80% - 89% Test
C	70% - 79%
D	60% - 69%
F	Less than 60 %

10. **Semester Test:** There will be a cumulative test given at the end of the semester. Making sure that you remain up to date on your daily assignments will help you be prepared for this test. I will hand out a review sheet prior to the test for studying. The review sheet is your opportunity to prepare for the test. Make the most of this opportunity by completing the review sheet, checking your answers, and asking questions about concepts on the test that you still do not understand or questions that you do not comprehend. You are not allowed to retake the Semester Test. All Semester Test grades are final. **If you are taking this course for college credit, you will have two semester exams in this grade. One for the college course from CWI and one from this course.**

11. **Respect:** In class, you are expected to treat all students around you and myself as your teacher with common courtesy and respect. No name calling or harassment of other students will be tolerated.

12. **Student Handbook:** It is your responsibility to read your student handbook so that you know what is expected of you.

13. **Cell Phones:** Cell phones are not needed in class. You will not need to use your phone as a calculator in class. Cell phones will be dealt with per the student handbook.

14. **Procedure for leaving the classroom:** Students must have permission from instructor to leave the classroom. Once permission is granted, the student must sign out on the sign out sheet. Upon return, student must sign back into class on the sign out sheet. You must fill out all columns. Consequence for not signing in or out will be loss of privilege to leave the classroom.

15. **Assignment Format:** In the upper right corner, all assignments must include your name, course, assignment number, and assignment. Assignments will be folded down the middle lengthwise. For all assignments, write the problem number and problem, then perform the work indicated in the instructions of the assignment. Unless told otherwise, you must show your work to get credit.

Please sign and turn in.

Printed name: _____

Signature: _____

Date: _____

Pacing Guide

Semester 1

Unit 2: Equations and Inequalities

- Solving Equations Graphically
- Solving Quadratic Equations Algebraically
- Applications of Equations
- Other Types of Equations
- Absolute Value Inequalities

Unit 3: Functions and Graphs

- Functions
- Graphs of Functions
- Quadratic Functions
- Graphs and Transformations
- Operations on Functions
- Inverse Functions
- Rates of Changes
- Finding Difference Quotient

Unit 4: Polynomial and Rational Functions

- Polynomial Functions
- Real Zeros
- Graphs of Polynomial Functions
- Rational Functions
- Complex Numbers
- The Fundamental Theorem of Algebra
- Partial Fraction Decomposition

Unit 5: Exponential and Logarithmic Functions

Radicals and Rational Exponents

Exponential Functions

Applications of Exponential Functions

Common and Natural Logarithmic Functions

Properties and Laws of Logarithms

Solving Exponential and Logarithmic Equations

Exponentials, Logarithmic, and Other Models

Unit 11: Analytic Geometry

Ellipses

Hyperbolas

Parabolas

Translations and Rotations of Conics

Unit 12: Systems and Matrices

Solve systems of Equations with 2 variables: substitution and elimination method

Solve Systems of Equations with 3 + variables: elimination method

Basic Matrix operations: Add, Subtract, Multiply, Use Scalars

Determinants

Put a system of equations into a matrix format

Use Cramer's Rule

Inverse of 2x2 matrix

Solve 2 variable system with inverse matrix

Inverse of 3x3 matrix using the adjugate method

Solve 3 variable system with an inverse matrix

Row Echelon Form

Gauss Elimination

Solve a system into Row Echelon Form and Use Back substitution

Solve a system into Reduced Row Echelon

Find the Inverse of an $n \times n$ matrix with an augmented matrix

Find the Area of a Triangle with a Matrix

If time allows:

Unit 1: Number Patterns

Real numbers, Relations, and Functions

Mathematical Patterns

Arithmetic Sequences

Lines

Linear Models

Geometric Sequences

Semester 2

Unit 6: Trigonometry

Right Triangle Geometry

Trigonometric Applications

Angle and Radian Measure

Trigonometric Functions

Basic Trigonometric Identities

Unit 7: Trigonometric Graphs

Amplitude and Period

Graphs of Sine and Cosine

Graphs of Cosecant and Secant

Graphs of Tangent and Cotangent

Periodic Graphs and Phase Shifts

Unit 8: Solving Trigonometric Equations

Graphical Solutions to Trigonometric Equations

Inverse Trigonometric Functions

Algebraic Solutions of Trigonometric Equations

Simple Harmonic Motion and Modeling

Unit 9: Trigonometric Identities and Proof

Identities and Proofs

Addition and Subtraction Identities

Other Identities

Using Trigonometric Identities

Unit 10: Trigonometric Applications

The Law of Cosines

The Law of Sines

The Complex Plane and Polar Form for Complex Numbers

DeMoivre's Theorem and nth Roots of complex Numbers

Vectors in the Plane

Applications of Vectors in the Plane

Unit 11: Analytic Geometry

Polar Coordinates

Unit 13: Statistics and Probability

Binomial Expansions

If we have time:

Unit 13: Statistics and Probability

Basic Statistics

Measures of Center and Spread

Basic Probability

Determining Probabilities

Normal Distributions