

# Pre-Calculus (Mathematics)

Honors Elective – Year – 11/12

Prerequisites: Algebra II & department recommendation

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## Course Description

The philosophy of Pre-Calculus revolves around the ability of math to describe quantitatively the wonders of God's creation. The course builds and solidifies the math skills needed to take a course in Calculus.

## Course Goal

The Christian teacher will:

1. continue to foster the Christian work ethic that will allow a student to successfully take college math courses.
2. polish the equation solving skills that a student has and add those needed for college math.
3. help the student to utilize any calculation that he has and to see the power of the new generation of graphing calculators.
4. lay the foundation for a theoretical understanding of calculus.

## Course Objectives

The student should be able to:

1. use his calculator effectively in solving problems.
2. understand practical and theoretical uses of trigonometry.
3. sketch all types of functions with and without the use of a graphing calculator.
4. understand the idea of limit.

## Course Outline

Semester 1

- Chapter 1 – Linear Relations and Function
- Chapter 2 – Systems of Linear Equations and Inequalities
- Chapter 3 – The Nature of Graphs
- Chapter 4 – Polynomial and Rational Functions
- Chapter 5 – The Trigonometric Functions
- Chapter 6 – Graphs of Trigonometric Functions
- Chapter 7 - Trigonometric Identities and Equations

Semester 2

- Chapter 8 – Vectors and Parametric Equations
- Chapter 9 – Polar Coordinates and Complex Numbers
- Chapter 10 – Conics
- Chapter 11 – Exponential and Logarithmic Functions
- Chapter 12 – Sequences and Series
- Chapter 13 – Combinations and Probability
- Chapter 14 – Statistics and Data Analysis
- Chapter 15 – Introduction to Calculus

## Instructional Strategies

Teaching strategies include lecture, demonstration, group activities, and daily practice.

### **Grading Methods**

The semester grade is broken into to following percentages:

Chapter Tests (50%)  
Class work (15%)  
Quizzes (15%)  
Semester Exam (20%)

#### Grading Scale (By percent)

|            |            |            |            |
|------------|------------|------------|------------|
| A+(100-98) | B+(89-87)  | C+(79-77)  | D+(69-67)  |
| A (97-93)  | B (86-83)  | C (76-73)  | D (66-63)  |
| A- (92-90) | B- (82-80) | C- (72-70) | D- (62-60) |

### **Student Materials**

Glencoe/McGraw-Hill – Advanced Mathematical Concepts, 2006; graphing calculator; notebook.

### **Classroom Procedures**

Each class will begin reviewing the previous lesson. Quizzes will be given once a week. Missed quizzes do not need to be made up. Chapter Tests are given every two or three weeks. Missed tests should be made up the first day a student returns to class.