

**Course Name:** Precalculus

**Duration:**  1 Semester  Full Year

**Grade Level:**  9th  10th  11th  12th (check all that apply)

### Are there any prerequisites for the course?

Students should have successfully completed Algebra 1, Geometry, and Algebra 2. **Passing Algebra 2 with a C or higher is highly recommended.**

### WHAT this course is about:

This course is meant to prepare students for AP Calculus AB or successful transition to college level math. Perseverance and focus will be the keys to learning and growing throughout this challenging course. Daily, consistent practice with frequent feedback and opportunity for students to get their questions answered in class is a continual priority.

### WHY take this course:

By choosing to take PreCalculus in high school you are setting yourself up for more options as you transition to college. **Far too many students who take a year or more “off” from their math studies end up having to repeat at least two years of high school math at college to get caught up and back-on-track.** You will waste less time and money at college if you stay engaged in mathematics in high school for all 4 years. PreCalculus is a challenging class in high school, but the payoff is tremendous when you get to the next level.

### WHAT you'll learn:

Topics include:

- A deeper look at functions and their graphs
- Analyzing functions for their domain and range analytically and graphically
- Polynomial, Power, and Rational Functions
- Describing function end behavior and asymptotic behavior using limits
- More work with the Fundamental Theorem of Algebra
- Solving, graphing, analyzing, and modeling with Exponential, Logistic, and Logarithmic Functions
- Transforming trigonometric functions
- Finding all 6 exact trig values of angles in any quadrant
- Solving trig equations algebraically, and graphically
- An introduction to analytic trigonometry
- Using trig identities to solve equations and simplify expressions
- Applied trigonometry for problem solving
- Basic vector operations
- Parametric equations
- Polar coordinate system
- Graphing polar equations

- Introduction to the derivative
- The Difference Quotient for finding instantaneous rate of change

### **WHAT you'll do:**

There are daily assignments that will count towards your grade. Quizzes usually occur every week. The amount of time students will spend on assignments outside of class varies greatly, depending on the pupil's preparation and level of scholarship. **Most students spend 15 – 45 minutes per day to earn a grade they desire.**

### **WHERE this could take you:**

Your successful completion of PreCalculus will allow you to enroll in AP Calculus AB at the high school level. If you are a senior, this course will greatly help you to succeed in your first required math class at the college level. Most STEM focused college majors will require math courses beyond PreCalculus and taking this course in high school will only help to make you more successful in college level math courses.

### **OPTIONAL Course Outline (“scope and sequence”, sequence chart, etc.)**

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