StudyForge
DIGITAL CURRICULUM

# Pre-Calculus

## Course Description:

Are your students intimidated about the prospect of having to take the “dreaded” Calculus course at some point in their future? Are you searching for a Pre-Calculus curriculum that will help your students master its topics and not only survive Calculus but even thrive? And all the while still enjoying the course? Your search is over.

StudyForge proudly presents: Pre-Calculus.

Pre-Calculus is the culmination of a students’ high school mathematical journey, as they learn the fundamentals of advanced functions, trigonometry, logarithms and more. The course thoroughly prepares students for the oncoming rigor of Calculus, yet does so in a manner that is compelling and rewarding, and fosters an appreciation for the real-life applications of each topic explored, as well as for math itself.

With auditory, visual, and hands-on components throughout, this is truly a course that suits all learners. The lessons are engaging, interactive and student-friendly, with interactive videos that allow students to pause and rewind at any point and go at their own speed, as well as fun, interactive applets and dynamic graphs scattered throughout that enhance student understanding.

Each video is accompanied by a student-friendly note package that allows students to take notes to whatever level of detail they like. There are also an abundance of practice questions for students to internalize the material, with full, detailed solutions for each, as well as a comprehensive review assignment and practice test. Furthermore, with randomized question banks, students can redo every quiz and test in the course to help them master the material and perform their very best.

*This course is a prerequisite for students who might take Calculus (or AP Calculus) in the future.*

## Core Units:

- Review of Functions
- Exploring Functions
- Exponential and Logarithmic Functions
- Solving Triangles and Trigonometric Equations
- Trigonometric Functions and Identities

## Elective Units:

- Quadratic Functions
- Sequences and Series
- Analytic Geometry
- Vectors and Matrices
- Limits

Not all schools and jurisdictions will require students to complete all 11 units, as curriculum standards vary by region. Teachers will need to customize their course by removing any units that are not required by their jurisdiction. Teachers can then adjust the semester exams accordingly.

## By the end of the course, students will be able to:

- Analyze and interpret a broad range of advanced functions and their key characteristics
- Connect and apply mathematical concepts across multiple representations, including graphs, equations, and real-world models
- Solve and apply complex equations, such as exponential, logarithmic, and trigonometric equations
- Model and interpret real-world phenomena using advanced functions and mathematical reasoning
- Use trigonometric relationships and identities to model and solve geometric and periodic problems
- Apply algebraic and analytical reasoning to explore and explain complex mathematical relationships
- Develop the mathematical fluency and critical thinking skills needed for future success in Calculus

## Assessments:

- Unit Note Package
- Lesson Practice Questions
- Quizzes
- Unit Review Assignment
- Unit Practice Test
- Unit Test
- Projects
- Semester Exams

## Student Requirements:

- Graphing Calculator for assessments (handheld or online)
    - Note: Every practice question has a built-in Desmos graphing calculator