

# PROVIDENCE CAREER & TECHNICAL ACADEMY

## Mathematics: Pre-Calculus

**Instructor Name: Mr. Spencer Foote**

**Time Frame: 2021 – 2022**

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### Course Description

Pre-Calculus is a mathematics course that follows Algebra I, Geometry, and Algebra II. The course allows students to gain an introductory understanding of convergence and divergence; collect, analyze, and draw conclusions from data; solve problems in contextual situations dealing with polynomial, rational, logarithmic, and trigonometric function; model motion using parametric equations and vectors; and develop an intuitive understanding of limits and continuity.

By taking Pre-Calculus, students should solidify and increase mathematical knowledge and skills at and above the level of Algebra II or its equivalent. They should also deepen and enrich the ways they think about math as well as develop the real applications of math across disciplines and in practical situations.

### Common Core Standards Addressed:

- HSN – CN: The Complex Number System
- HAS – REI: Reasoning with Equations and Inequalities
- HSF – IF: Interpreting Functions
- HSF – BF: Building Functions
- HSF – TF: Trigonometric Functions
- HSG – GPE: Expressing Geometric Properties with Equations

### Required Textbooks, Reading and Supplementary Materials:

- Pearson Precalculus 10<sup>th</sup> edition and online resources [mymathlabforschools.com](http://mymathlabforschools.com)
- [www.khanacademy.com](http://www.khanacademy.com)

### Assignment and Examination Schedule:

Semester 1	Semester 2
<p><b>Unit 1: Functions and Graphs</b></p> <ul style="list-style-type: none"><li>• Modeling and Equation solving</li><li>• Functions and their properties</li><li>• Twelve Basic Functions</li><li>• Building Functions from Functions</li><li>• Parametric Relations and Inverses</li><li>• Transformations</li><li>• Modeling with Functions</li></ul> <p><b>Unit 2: Polynomial, Power, and Rational Functions</b></p> <ul style="list-style-type: none"><li>• Linear and Quadratic Functions and models</li><li>• Modeling with Power Functions</li><li>• Polynomial Functions of Higher Degree</li><li>• Real Zeros of Polynomial Functions</li><li>• Complex Zeros</li><li>• Graphs of Rational Functions</li><li>• Solving Equations in one Variable</li><li>• Solving Inequalities in One Variable</li></ul>	<p><b>Unit 3: Exponential, Logistic, and Logarithmic Functions</b></p> <ul style="list-style-type: none"><li>• Exponential and Logistic Functions</li><li>• Exponential and Logistic Modeling</li><li>• Logarithmic Functions and their Graphs</li><li>• Properties of Logarithmic Functions</li><li>• Equation Solving and Modeling</li><li>• Mathematics of Finance</li></ul> <p><b>Unit 4: Trigonometric Functions</b></p> <ul style="list-style-type: none"><li>• Angles and Their Measures</li><li>• Trigonometric Functions of Acute Angles</li><li>• Trigonometry Extended: The Circular Functions</li><li>• Graph of Sine and Cosine</li><li>• Graph of Tangent Cotangent, Secant, and Cosecant</li><li>• Graph of Composite Functions</li><li>• Solving Problems with Trigonometry</li></ul> <p><b>Unit 5: Analytic Trigonometry</b></p> <ul style="list-style-type: none"><li>• Fundamental Identities</li><li>• Proving Trig Identities</li><li>• Law of Sine and Cosine</li></ul>

## Grading Policy

We encourage all students to come to class prepared every day, to participate in all learning activities, and to do their homework. In an effort to measure students' true mastery of the course material, assessments will be used to calculate the final grades of all students. Assessments can include unit tests, quizzes, projects, presentations, midterms, and final exams.

- **All students will have an opportunity to retake the assessment for a better grade, after additional review and preparation. Any student who scores less than 60% on any classroom assessment will be required to complete assigned review assignments and retake the assessment to demonstrate mastery of the material.**

Grades will be weighted as follows:	<b>Summative Assessments*</b>	<b>50 %</b>
	<b>Formative Assessments*</b>	<b>10 %</b>
	<b>Independent Work**</b>	<b>40 %</b>

\*Summative Assessments include: quizzes, tests, exams, projects, and presentations.

\*\*Formative and Independent Work include: do now, quizzes, class work & homework.

Due to the possible changes in schedule and calendar because of COVID-19, these grading breakdowns may be subject to change. I will notify you if there will be change in grading policy.

## Credit for PSAT / SAT:

Earning an **EXCEEDING BENCHMARK** score on the PSAT / SAT will earn 8 points added to your **FINAL AVERAGE**.  
Earning a **MET / AT BENCHMARK** score on the PSAT / SAT will earn 5 points added to your **FINAL AVERAGE**.

## Academic Integrity:

Students are expected to submit their own, original work. If a student is talking during a test, he or she will be expected to finish the test on their own after school. If two students turn in the same work, both will be expected to re-submit a new copy of the work.

## Prior to RTII Plan:

1. The math department shall identify on a monthly basis any student who has frequent absences, several missed assignments, and lack of productivity within the classroom.
2. Upon identifying a student with needs a meeting shall be made with the student, guidance, and the teacher of record to evaluate the student's lack of performance when attending math. This meeting will allow the student and instructor to produce a comprehensive plan with the help of a guidance counselor to get the student to the appropriate performance level. This gives the student the opportunity to be a part of his or her education and redirection of their education.
3. If the student does not comply with the agreement within 2 weeks, a representative from the math department will contact the guidance department to make an appointment for a second conference including the parent to discuss any issues or concerns about their child.
4. If student performance continues to decline the student will be referred to RTII (see below for RTI plan)

## PCTA Math RTII Plan:

1. The math department will meet once a month to discuss any potential students who are in the "at risk" category. The "at risk" category is defined as any student missing more than 10 days in one quarter, also any student who fails an assessment from the curriculum.
  - a. Students whose **Star Math** is Red (Urgent Intervention), Yellow (Intervention) and Blue (On Watch) will use **Khan Academy** at home. RTII Identification Students will be monitored using STAR. Additionally, Students in Red or with a 62 class average or below will be encouraged to enroll in the afternoon afterschool program until achieving Blue in Star and a 63 or above class average.
2. Once any "at risk" students have been identified an EWS form shall be forwarded to guidance and special education. The form will be filed permanently in the math department.
3. The student will be enrolled in weekly after-school tutoring to help provide the student additional support.
4. Check-ins with the student's progress and the teacher of record will be monitored.

5. A meeting shall be scheduled with the RTII team to discuss further actions to create a comprehensive plan for the student's to succeed.