PreCalculus

Dear Student & Parents,

Welcome to the 2025-2026 school year at the Governor's School for Science and Technology! My name is Mrs. Yee and I will be teaching you PreCalculus this year. I am really excited to see what this year has in store for us. If you ever have any questions or concerns during the year please let me know. My goal is to help your child succeed in school and exceed their goals for this year.

Prerequisites: Algebra II / Trigonometry

Contact Info:

- Email: deidre.yee@nhrec.org
- Phone:
  - NHREC/GSST = (757) 766 - 1100 x3394
  - Direct Line = (757) 704 - 4546
- Teaching Schedule:
  - P1 @ 7:10am – 7:55am & Wednesday 7:10am – 7:50am
  - P2 @ 8:00am – 8:45am & Wednesday 7:55am – 8:35am
  - P7 @ 1:00pm – 1:45pm & Wednesday 1:10pm – 1:50pm
  - P8 @ 2:00pm – 2:35pm & Wednesday 1:55pm – 2:35pm
- Office Hours
  - P3, P4, P5, and P6 (Science block) with instructor permission
  - Available in-person or via Zoom @ Tuesday & Thursday 2:45pm – 4:00pm

Materials:

- Class Textbook – PreCalculus: Mathematics for Calculus, 7th edition by Stewart
  - Digital pages will be available in Canvas
  - Physical textbook available by request
- 3 Subject Spiral Notebook (for notes and classwork)
- 2" 3-ring binder & Tabs (Notes, Assignments, Review Packets, Tests & Quizzes, Projects)
- TI 84+ Graphing Calculator ****If you cannot afford one, check "Helpful Resources" module in Canvas*

Calendar of Course Activities: A calendar of course activities is available through Canvas. Note that the calendar is a living document and is subject to change as the class progresses.

PreCalculus 1 (MTH 161): Presents topics in power, polynomial, rational, exponential, and logarithmic functions, and systems of equations and inequalities. Lecture 3 hours per week. THIS IS AN APPROVED UCGS/PASSPORT COURSE.

PreCalculus 2 (MTH 162): Presents trigonometry, trigonometric applications including Law of Sines and Cosines and an introduction to conics. Lecture 3 hours per week. THIS IS AN APPROVED UCGS/PASSPORT COURSE.

First Semester:

Units & Learning Outcomes

1. Equations and Inequalities
    - Use formula and completing the square methods to solve quadratic equations.
    - Solve polynomial and rational inequalities.
    - Interpret the algebraic and graphical meaning of equality functions ($f(x) = g(x)$) and inequality of functions ($f(x) > g(x)$)
2. Matrices with Systems of Equations
    - Solve three variable linear systems of equations using the Gaussian elimination method to transform a matrix into reduced row echelon form.
    - Perform the operations of matrix-matrix addition, scalar-matrix multiplication, and matrix-matrix multiplication.
    - Find the inverse of a matrix, if it exists, and know conditions for invertibility.
    - Use inverses to solve a linear system of equations.
    - Compute the determinant of a square matrix using cofactor expansion.
    - Perform partial fraction decomposition.
3. Coordinate Plane
    - Perform arithmetic operations, including the difference quotient.
    - Determine the general and standard forms of quadratic functions.
    - Use completing the square methods to determine the standard form of a quadratic function.
    - Identify intercepts, vertex, and orientation of the parabola and use these to graph quadratic functions.
    - Determine if a function demonstrates even or odd symmetry.
    - Write the equations of circles in standard form centered both at the origin and not at the origin.

4. Functions
    - Distinguish between relations and functions
    - Evaluate the domain and range of functions in general, including root and rational functions.
    - Perform arithmetic operations, including the composition of functions.
    - Identify and graph linear, absolute value, quadratic, cubic, and square root functions and their transformations.
    - Determine and verify inverses of one-to-one functions.
5. Polynomial and Rational Functions
    - Identify zeros (real-valued roots) and complex roots, and determine end behavior of higher order polynomials and graph the polynomial, and graph.
    - Use the Fundamental Theorem of Algebra, Rational Root test, and Linear Factorization Theorem to factor polynomials and determine the zeros over the complex numbers.
    - Identify intercepts, end behavior, and asymptotes of rational functions, and graph.
6. Exponentials and Logarithms
    - Identify and graph exponential and logarithmic functions and their transformations.
    - Use properties of logarithms to simplify and expand logarithmic expressions.
    - Convert between exponential and logarithmic functions and demonstrate an understanding of the relationship between the two forms.
    - Solve exponential and logarithmic equations using one-to-one and inverse properties.
    - Solve application problems involving exponential and logarithmic functions.
7. Trigonometry with the Unit Circle
    - Identify angles in standard form in both degree and radian format and convert from one to the other.
    - Find the value of trigonometric functions of common angles without a calculator using the unit circle.
    - Use reference angles to evaluate trig functions.
    - Find the value of trigonometric functions of angles using a calculator.
    - Graph the six trigonometric functions using the amplitude, period, phase and vertical shifts.
    - Use trig functions to model applications in the life and natural sciences.

Second Semester:

Units & Learning Outcomes

8. Trigonometry with Triangles
    - Find the arc length
    - Find the value of trigonometric functions of common angles without a calculator using right triangle trigonometry.
    - Solve right triangles and applications involving right triangles.
    - Use the Law of Sines and Cosines to solve oblique triangles and applications.
9. Analytic Trigonometry
    - Use fundamental trigonometric identities to simplify trigonometric expressions.
    - Use the fundamental, quotient, Pythagorean, co-function, and even/odd identities to verify trigonometric identities.
    - Use the sum and difference, double angle, and half-angle formulas to evaluate the exact values of trigonometric expressions.
    - Determine exact values of expressions, including composite expressions, involving inverse trigonometric functions.
    - Solve trigonometric equations over restricted and non-restricted domains.
10. Polar and Parametric
    - Represent curves by parametric equations
    - Use and graph with polar system
    - Convert complex numbers between standard form and polar form.
    - Use DeMoivre's Theorem to find all roots of real and complex numbers.
11. Vectors
    - Identify and apply the parts of the three-dimensional coordinate system, distance formula and the equation of the sphere.
    - Compute the magnitude, scalar multiple of a vector, and find a unit vector in the direction of a given vector.
    - Calculate the sum, difference, and linear combination of vectors.
    - Calculate the dot product and cross product of vectors, use the products to calculate the angle between two vectors, and to determine whether vectors are perpendicular or parallel.
    - Write the equations of lines and planes in space.

12. Conic Sections
    - Identify the conic sections of the form $Ax^2 + By^2 + Dx + Ey + F = 0$
    - Write the equations of parabolas, ellipses, and hyperbolas in standard form centered both at the origin and not at the origin.
    - Identify essential characteristics unique to each conic.
    - Graph equations in conic sections, centered both at the origin and not at the origin.
    - Solve applications involving conic sections.
    - Define the conic forms in polar form.
13. Sequences and Series
    - Identify the terms of geometric sequences.
    - Find a particular term of a geometric sequence.
    - Determine the formula for the a_n term of geometric sequences
    - Find the sum of first n terms of finite geometric series
    - Find the sum of infinite geometric series.
    - Introduce arithmetic concepts.

Grades:

- Governor's School:
    - A = 90 - 100
    - B = 80 - 89
    - C = 70 - 79
    - D = 60 - 69
    - F = less than 60
- PreCalculus:
    - Tests: 45%
    - Quizzes: 30%
    - CW & HW: 15%
    - Review: 10%

GSST Grading Policy

GSST Policies: Students should refer to the Student Handbook for the full list and explanation of GSST policies related to students.

Important Dual Enrollment Dates

Fall 2025 Semester (MTH 263)

- **Wednesday, September 17th:** Registration begins
- **Friday, September 26th**: Last day to register for college credit
- **Wednesday, October 8th**: Last day to drop dual enrollment so the class will not appear on the student's college transcript
- **Tuesday, November 25th**: Last day to drop dual enrollment and class will appear as a "W" on the student's college transcript
- **Monday, January 26th**: Grades posted to SIS

Spring 2026 Semester (MTH 264) – Will be announced in January

VPCC Dual Enrollment

Students have the option to sign up for dual enrollment through Virginia Peninsula Community College (VPCC) for college credit using the online program DualEnroll.

The decision to dual-enroll in a course requires careful consideration. You have options, as you can see from the DE module on Faculty Advising Canvas course. You may wish to contact your top choice colleges to ask what the impact of taking a dual-enrollment course might be for your goals, particularly if you do not perform to your expectations in the course. Please be aware that you are generating a permanent college transcript with all the courses for which you are dual-enrolled. You can also use the dual-enrollment student guide from Transfer Virginia to help you determine the potential impact.

If you choose to dual-enroll, you must monitor your course grade. If you find you are not earning grades you want to have on your permanent college transcript, you may consider dropping the dual-enrollment portion prior to the Add/Drop date for the term of the course, or to withdraw from the dual-enrollment portion prior to the Withdrawal date. If you choose to withdraw from dual enrollment for the class, you will still earn high school credit and can plan to be well-prepared for the class in college. Dropping will have no record on your transcript, while withdrawal will leave a note on your college transcript indicating you withdrew, but no grade will be recorded on your college transcript. You can request a decline or withdrawal form from me.

No matter what you choose to do, I will respect your wishes. I want to work with you to support your learning, but I cannot learn the information for you; you will have to invest effort in the course in order to succeed. This may require you to learn new learning strategies that you haven't used in the past. I will do my utmost to support your personal learning in the class and encourage you to pursue your goals.

Students must keep in mind that enrollment in a college class, including dual-enrollment while in high school, entails consequences that can be significant and permanent including, but not limited to, the following:

- Final course grades on college transcripts become a permanent part of a student's college record.
- Graduate-level education programs may consider DE grades equally with traditional college courses in calculating GPA for admission (E.g. graduate, medical, veterinary schools).
- Grades of D and F and course withdrawals can negatively affect scholarship and financial aid requests.
- Once the withdrawal date has passed, students cannot withdraw from a class, except in extraordinary circumstances such as a medical emergency.

Attendance Policies

- Excuses Absences – Doctor's appointments, surgeries, field trips, and vacations are considered excused absences. A note or email from your *parent, teacher, or school* is required. If you will be absent for an extended period of time, please make arrangements with me to get course material early.
- Unexcused Absences – If you are absent without prior knowledge (illness), this is considered an unexcused absence until a note from your parent has been provided. If you are absent for one or two days, please check Edmodo for missed material. If you are absent for more, we can discuss how to get you caught up on Edmodo or when you return.
- Test/Quiz Absences – If you are absent the day a test or quiz is given, you will be expected to take the test/quiz the first day you return, unless you can make other arrangements such as coming to school early or staying later.

Class Expectations

- Cell Phone Policy – In compliance with Virginia state guidelines aimed at minimizing classroom distractions and promoting a focused learning environment, students are required to keep cell phones silenced and out of sight during instructional time unless explicitly permitted by the teacher for educational purposes. Unauthorized use of cell phones during class may result in confiscation and/or disciplinary action as outlined in the school's student handbook.
- Keep your work – Errors in gradebook entry do occur, so please keep your work in case there are any errors that need to be fixed.
- Homework assignments are listed in Canvas, will be assigned and collected each class, and will be graded based upon effort. Mostly odd problems will be assigned so that you can check your answers. If an even problem is assigned, the answer will be posted under the assignment on Canvas.
- Quiz/Test Review – In preparation for assessments, you will receive a quiz or test review packet. You will be expected to have this completed and turned in prior to taking the assessment. Solutions will be posted in Canvas so you can check your answers and compare solution techniques.
- Calculators – Graphing calculators are allowed on quizzes. For tests, graphing calculators are NOT allowed, however, students can have a scientific calculator.

Test Replacement Policy

- At the end of the quarter, students can complete test corrections. For test corrections, students redo the problems they lost points on, on a separate piece of paper, and can receive up to 50% of their lost points back (i.e., 60% → 80%).
- If a student performs well on all their tests, they may opt to replace their lowest quiz grade instead.

Helpful SmartPhone Apps

Icon	App Name	Purpose
	Power School	Allows you to view your grades for Governor's School classes. If it is needed, the district code is "JPPH"
	Gmail	Sync with your Governor's School email. You can use it communicate with your Governor's School teachers, classmates, and mentors on the go.
	New Horizons Regional Edu Ctrs	Quick and easy access to faculty contacts, grades, events (such as snow days and delays), etc
	Canvas Red = Student Blue = Parent	Allows you to communicate with your Governor's School teachers and classmates on the go. Canvas is also where you can find the class notes, helpful videos, homework assignments, practice quizzes, and flashcards (outside Quizlet)
	Quizlet	Access to teacher made flashcards with various self-quiz options.

Course Collaboration Guidelines on Assignments in Calculus

Students: Please read these guidelines carefully, then sign below and have a parent sign. If you have any questions now or during the year about acceptable assistance, ask your teacher.

Type of Assignment	Is Collaboration Permitted?	What Type of Collaboration is Permitted?
Homework	Yes, Minimal	Students should complete homework assignments independently. They may use resources for guidance (books, parents, classmates, internet), however being told what to write and copying step-by-step work is considered cheating
Reviews	Yes, Minimal	Should be completed independently with minimal use of resources. Copying your work directly from another student, solution guide or answer key is considered cheating.
Tests/Quizzes	No	Should be completed independently to identify what each individual student understands and has mastered.

Academic Honesty: All students are required to take responsibility for upholding everyone's honesty in the classroom. All students will sign a copy of the GSST Honor Pledge during the first week of school.

The Pledge: "I pledge to support the Governor's School for Science and Technology (GSST) Code for Academic Work. I will refrain from any dishonesty or deception, such as cheating or plagiarizing, which are honor code violations, on any and all academic work. I am further aware that as a member of the academic community, I should report any suspected violations to an instructor."

In the case of copying, there will be **no determination of who copied from whom; all students involved will receive no credit for the assignment and the students involved may be referred to the GSST administration for disciplinary action. Detection of AI generated responses will result in no credit for the assignment and a parent conference will be scheduled**. Regarding tests and quizzes, if students share information during an assessment or look at notes, internet sources, or other materials during the assessment, all students involved will receive no credit for the assessment and the students will be referred to the school's administration for disciplinary action.

MATH SYLLABUS

Parent & Student Signature Page

Please return this signed sheet to your instructor by 9/3/2025

Please read these guidelines carefully, then sign below and have a parent sign. If you have any questions now or during the year about acceptable assistance, ask your teacher.

Communication between students, teachers, and parents is very important to a successful school year. Students have received a syllabus, which they are expected to review with parents. It was reviewed with your instructor in class and students had an opportunity to ask questions during class.

Parents, please sign below to indicate:

1. I have received and reviewed the complete class syllabus with my student. We understand that classroom rules, including the cell phone policy, will be enforced for both safety and academic success.
2. I acknowledge that we can regularly monitor academic progress through PowerSchool and/or Canvas, and it is the responsibility of both students and parents to stay informed. If there are questions or concerns about a grade, we will reach out to the teacher promptly to discuss it.
3. I understand course follows a rigorous curriculum designed to challenge students and prepare them for future academic success. By enrolling in this class, we acknowledge the high expectations regarding academic performance, class participation, time management, and personal responsibility. Success in this course will require consistent effort, organization, and a willingness to seek help when needed. We encourage open communication and a growth mindset throughout the year.

Please check your preferred contact method:

- Email address:
- Cell phone:
- Home phone:

_____	_____	_____
Student name (printed)	Student Signature	Date
_____	_____	_____
Parent/Guardian name (printed)	Parent/Guardian Signature	Date