The mission of Hermon High School is to prepare students for personal success in college, career, and community.

Precalculus w/Honors Option

Instructor:
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This course includes an in depth study of polynomial, rational, logarithmic, exponential, and trigonometric functions and their graphs. Matrices and their use in solving systems of equations, conic sections, and series & sequences are studied as time allows. Honors units cover set theory, Pascal's triangle and binomial expansion, polar coordinates, and vectors. Students who take this course are college bound students who intend to take calculus. Students electing to do the Honors option will be expected to complete self-study packets with extra in-class and homework time. Students who complete this course will be prepared for Calculus, AP Calculus, or a college level Calculus I course.
2 Semesters/1 Credit

Graduation Standards (the number of the standard is referenced in the performance indicators listed in each unit):

1- Number & Quantity: Reason and model quantitatively, using units and number systems to solve problems. (addressed through ongoing skills checks)
2- Algebra: Interpret, represent, create and solve algebraic expressions.
3- Functions: Interpret, analyze, construct, and solve linear, quadratic, and trigonometric functions.
4- Geometry: Prove, understand, and model geometric concepts, theorems, and constructions to solve problems.

Unit 1	**General Parent Functions (Accelerated Review)**
Summary	Unit begins by ensuring a firm foundation in making connections between concepts and the graphical display of a function. Parent functions and their characteristics are reviewed and expanded upon. Students will perform multiple transformations on parent functions. Honors: Independent study in basic set theory. Find intersection, union, complement of complex sets.
Performance Indicators Assessed in Unit	M.3A Understands, graphs, transforms, applies parent functions. Honors: M.1 D Can explain and perform set operations.

Unit 2	**Polynomial Functions (Accelerated Review)**
Summary	Unit begins with a review of polynomial functions; remainder and factor theorems are included. The unit moves into analytical methods to determine what we are seeing graphically. Polynomial inequalities are addressed graphically and algebraically. Experience with modeling real-world data with polynomial functions using technology is end of unit focus.. Honors: Independent study of Pascal's Triangle, its patterns, and its use in binomial expansion.
Performance Indicators Assessed in Unit	M.2I Solve polynomial equations using various methods. M.3E Graph polynomial functions and understand key features.

Unit 3	Rational Functions
Summary	Unit focus is to analyze and graph rational functions using elements of the algebraic form to determine the graph characteristics. Students will solve rational equations and inequalities. Honors: Rational functions extension
Performance Indicators Assessed in Unit	M.2K Solves rational equations and inequalities. M.3K Graphs rational functions and identifies key features.

Unit 4	Exponential and Logarithmic Functions
Summary	Unit begins with a review and extension of graphing, evaluating, analyzing exponential and logarithmic functions. Students will apply properties of logarithms., solve exponential and logarithmic equations, and model data using exponential, logarithmic functions. Honors: Exponential & logarithmic functions extension.
Performance Indicators Assessed in Unit	M.2M Solve logarithmic and exponential equations. M.3G Models, graphs, exponential and logarithmic functions; solves related problems.

Unit 5	Trigonometry
Summary	Students first review trigonometric ratios as they relate to right triangles. Unit will extend student knowledge of trig ratios to rotations of the unit circle using degrees and radians and then to graph the trig functions in the coordinate plane. Trig functions will be used to model periodic functions and inverse trigonometric functions will be investigated. Once comfortable with trigonometric functions, students will learn and verify basic trigonometric identities and solve trig equations. Honors: Independent study of Polar Coordinates
Performance Indicators Assessed in Unit	M.3F Understands and applies trigonometry of the unit circle. M.3L Model periodic phenomena with trigonometric functions. M.3M Prove and apply trigonometric identities. M.4E Use properties of triangles in problem solving, including trigonometry.

Unit 6	Matrices
Summary	Unit introduces matrices as a method to solve systems of equations efficiently. Matrix systems will be solved using row operations, inverses, and Cramer's rule. Linear optimization is covered as a culminating project. Honors: Independent study of Vectors.
Performance Indicators Assessed in Unit	M.2L Solve matrix systems of equations.

Unit 7	Conic Sections
Summary	Students will analyze , graph, and use key characteristics of graphs to write equations of

	parabolas, circles, ellipses, and hyperbolas. Students also develop the ability to identify the conic section when given the equation. Honors: Extension in Conic Sections
Performance Indicators Assessed in Unit	M.4 Analyze and graph equations of conic sections.

Unit 8	**Sequences and Series**
Summary	Unit relates sequences with functions and students will compute sums with sigma notation. Students will apply arithmetic and geometric sequences and series in problem solving.
Performance Indicators Assessed in Unit	M.3D Uses sequence and series notation and formulas; applies in problem solving.

Summative Assessments Retake

- Summative assessments will count as 70% of the grade.
- Students have the opportunity to retake summative assessments.
- The student must submit a retake form to the teacher within five (5) school days of the date that the summative assessment score is reported to the student.
- The highest score a student can receive on a retake or late assessment is a 75.
- The score achieved on a retake will replace the current score (even if the score is lower).
- If a student is making up a test from an absence, that assessment will be graded up to 100.

- This course will have a final exam in June which will count as 10% of the final grade for the course.

Make-up Work

Upon their return to school from an absence, it is the student's responsibility to secure make-up work from their teacher. The due date of the missed work will be one additional class period for each day of absence from that class or at the discretion of the teacher.

Grading of Formative Assessments

- Formative assessments will count as 30% of the grade.
- Formative assessments may be scored on either a 0-100 scale or a 0-4 scale.
- The 0-4 scale will be represented in Power School as 4=100, 3=87, 2=77, and 1=67.
- The method of scoring of formative assessments will be determined by assignment.