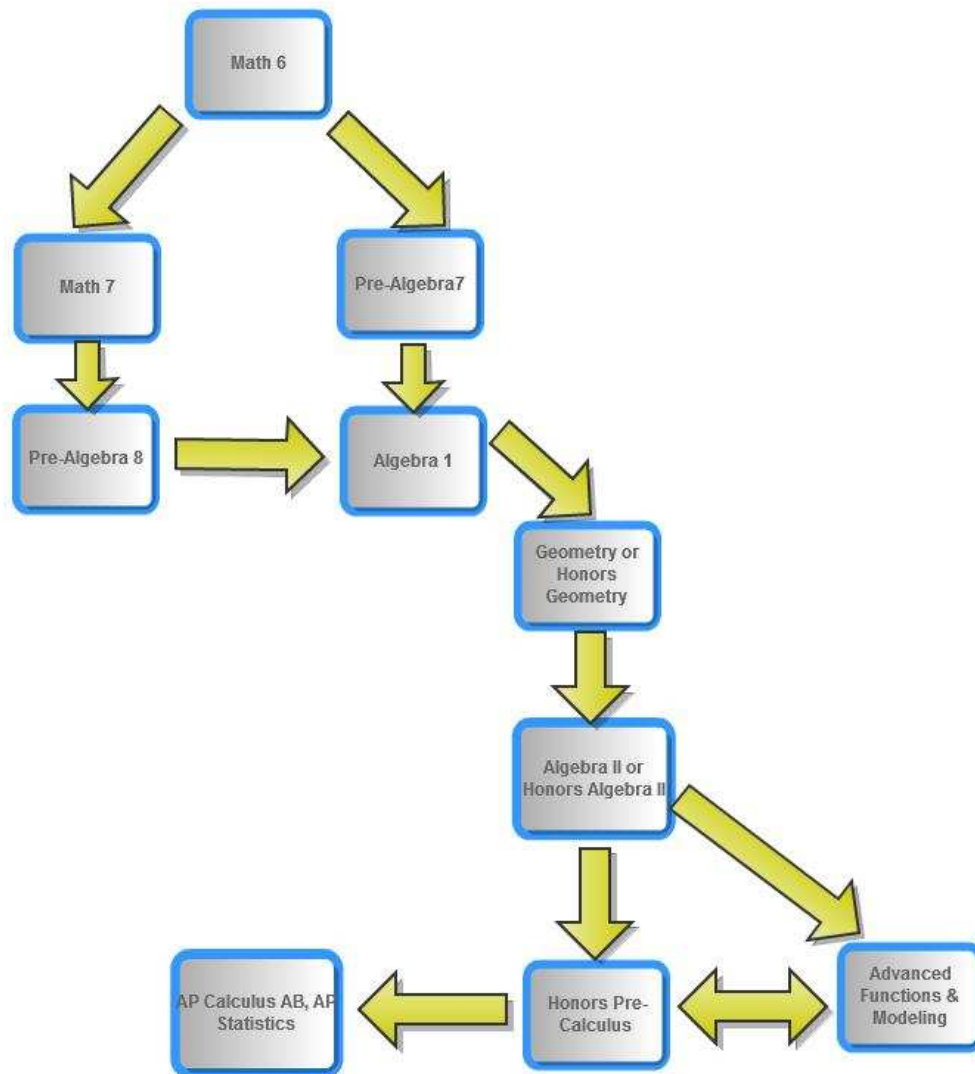


Mathematics Curriculum Map

If students complete the requirement of one course, Pre-Calculus, beyond Algebra II before their senior year, the options available to them are AP Calculus AB, AP Statistics, and Math Modeling. Students may take Math Modeling (Advanced Functions and Modeling) after having completed Algebra II or Honors Algebra II.

Although a number of advanced students take courses outside of that offered in a typical course sequence, Woods Charter School will not provide tuition for students to take college or university courses. Acceleration in Mathematics should be coordinated with the chairperson of the math department.

Typical course sequences:



Courses

Algebra I, 8th Grade

Prerequisites: Successfully complete Pre-Algebra in the 7th grade and/or have specific instructor recommendation. Attain the Algebra I benchmark achievement level on the End of Grade test for 7th grade mathematics. Have an A or B average in 7th grade mathematics.

Grade: 8

Course Length: Year

Algebra I continues the study of basic algebraic concepts including operations with real numbers and polynomials; relations and functions; creation and application of linear functions and relations; and an introduction to nonlinear functions. Graphing calculators are used regularly for instruction and assessment. **Note: Algebra I is required for the College/University Preparatory Course of Study graduation requirements. If the student does not achieve at least a grade of C or above, additional work in Algebra I will be required.**

Algebra I, 9th Grade

Prerequisite: Grade C or above in Grade 8 Pre-Algebra Concepts. If the student does not achieve a grade of C or above, additional work will be expected to ensure success in Algebra I.

Grade: 9

Course Length: Year

Algebra I continues the study of basic algebraic concepts including operations with real numbers and polynomials; relations and functions; creation and application of linear functions and relations; and an introduction to nonlinear functions. Graphing calculators are used regularly for instruction and assessment. **Note: Algebra I is required for the College/University Preparatory Course of Study graduation requirements. If the student does not achieve at least a grade of C or above, additional work in Algebra I will be required.**

Geometry

Prerequisite: Proficiency on Algebra I EOC

Grade: 9, 10

Course Length: Year

The axioms, techniques, and results of Euclidean geometry are studied in this course. Topics include angle relationships, congruency, similarity, coordinate geometry, properties of lines and circles, area, volume, constructions, right angle trigonometry, and transformations in the coordinate plane. Students develop deductive reasoning through the writing of formal proofs.

Note: Geometry is required for the College/University Preparatory Course of Study

Honors Geometry

Prerequisite: Algebra I with Proficiency on Algebra I EOC

Grade: 9, 10

Course Length: Year

Weight: + 1

This course covers all the material included in the Geometry course at an accelerated pace so students have opportunities to study supplementary topics. Students are assigned formal research papers and/or projects. **Note: Honors Geometry requires good study skills and regular homework completion.**

Algebra II

Prerequisite: Algebra I and Geometry

Grade: 10, 11

Course Length: Year

This course extends and relates the concepts of Algebra I and Geometry. Topics include algebraic proofs; factoring; linear equations and inequalities; functions and relations; rational expressions; exponential and logarithmic functions; and complex numbers. The use of matrices and determinants, as well as mathematical modeling of real-life applications, enhances the study of functions. Graphing calculators are used to facilitate the mathematical modeling of real-life problems. **Note: Algebra II is required for the College/University Preparatory Course of Study.**

Honors Algebra II

Prerequisite: Algebra I and Geometry

Grade: 10, 11

Course Length: Year

Weight: +1

This course covers all the material included in the Algebra II course at a more comprehensive level and at an accelerated pace. General emphasis is placed on mathematical modeling and use of the graphing calculator and projects. **Note: Honors Algebra II is a rigorous course requiring strong math skills and completion of nightly homework.**

Math Modeling (Advanced Functions & Modeling)

Prerequisite: Algebra II or Honors Algebra II

Grade: 11, 12

Course Length: Year

This course provides students an in-depth study of modeling and applying functions. Mathematics of social choice, growth in nature, consumer issues, fractal geometry, and probability are just a few of the areas from which applications originate. Appropriate technology, including application software and graphing calculators are used in each unit of study. **Note: This course fulfills the requirement of a class beyond Algebra II on the College/University Preparatory Course of Study.**

Honors Pre-Calculus

Prerequisite: Algebra II or Honors Algebra II and/or teacher recommendation

Grade: 11, 12

Course Length: Year

Weight: +1

Topics covered include the real number line; the plane; one-variable and two-variable functions with applications; graphing techniques; circular and trigonometric functions; exponential and logarithmic functions; piecewise functions; vectors; second degree relations; polynomial and transcendental functions; polar coordinates; sequences and series, limits of functions; rates of

change and integrals; and data analysis. Use of graphing calculators is required. **Note: This course fulfills the requirement of a class beyond Algebra II on the College/University Preparatory Course of Study and is a required course for Woods Charter School High School Students.**

AP Statistics

Prerequisite: Pre-calculus

Grade: 11, 12

Course Length: Year

Weight: +2

Major topics covered in this course include exploring data; describing patterns and departures from patterns; sampling and experimentation; planning and conducting a study; and statistical inference including estimating parameters and testing hypotheses. **Note: Students are required to take the AP exam.**

AP Calculus AB

Prerequisite: Pre-calculus

Grade: 11, 12

Course Length: Year

Weight: +2

Major Topics include elementary functions, differential and integral calculus. The concept of limits and algebraic, trigonometric, exponential and logarithmic functions are studied. Derivatives, application of derivatives, anti-derivatives, applications of the integral, and an introduction to differential equation are studied in the class. **Note: Students are required to take the AP exam.**