

## **Narrative Version of the Mathematics Course Sequence:**

These charts explain the various pathways of Greenwich High School's mathematics courses. Each entry point is based on mastery of mathematical content, skills and processes, and is not based on age or grade level. Students who demonstrate the ability to master more mathematical content at a faster pace enter at different pathways in this course sequence guide. Under each math class, you will see the prerequisite courses and its minimum grade needed to continue in that course sequence.

### **Row 1. Grade 9 Entry Course: Algebra 1/ Geometry Course 1**

- The first row of courses are mathematics classes that complete the core curriculum with additional support built into the course. Students who enter this math pathway are recommended by their 8th grade teacher and earn a C- or below for their test and quiz average in Grade 8 Pre-Algebra. GHS's Algebra 1/Geometry Course sequence provides the student with the core curriculum of Algebra 1 and Geometry over a three-year period. Algebra 1/Geometry Course Sequence reviews pre-algebra skills, and then introduces the core curriculum of Algebra 1 and Geometry. Students who successfully complete Algebra 1/Geometry Course 1 enter Algebra 1/Geometry Course 2 in Grade 10 and Algebra 1/Geometry Course 3 in Grade 11.
- Students who successfully complete the Algebra 1/Geometry Course sequence may enter the senior elective course, Topics in Mathematics, whose curriculum is project-based study of mathematics found in daily living and common career choices, like budgeting, taxes, investments, travel, and other authentic scenarios. Students who complete the Algebra 1/Geometry Course sequence, are ready for the challenge of higher level Algebra, and have teacher recommendation enter Algebra 2B for senior year.

### **Row 2. Grade 9 Entry Course: Extended Algebra**

- Extended Algebra is the entry course for freshmen who took Grade 8 Pre-Algebra in and had a cumulative test & quiz average between a C and B-. Extended Algebra presents the core curriculum of Algebra 1. Students in this course meet with their classroom teacher 6 days on the cycle and with their math lab teacher 2 days on the cycle for additional support and review of the curriculum. Students who are successful in this sequence progress to Geometry B in Grade 10 and Algebra 2B in Grade 11.
- Depending on their teacher's recommendation and final grade in Algebra 2B, students may be eligible to take one of three senior courses. All students who complete Algebra 2B may elect to take Grade 12 Topics in Mathematics. Students who complete Algebra 2B with a final grade C or better can choose to take College Algebra and Trigonometry. With teacher recommendation, those students who complete Algebra 2B with a final grade of C+ or better may enroll in Statistics 1 & 2 for senior year math.
- Of note, students in Grade 9 Extended Algebra earn a minimum final grade of A- AND who have their teacher's recommendation AND successfully complete summer coursework from the Math Program Administrator, which includes a minimum passing score on the placement test, may accelerate into the advanced sequence in the third row in Grade 10.

### **Row 3. Grade 9 Entry Course: Algebra 1**

- Algebra 1 is the entry course for 9th graders who completed Grade 8 Pre-Algebra and earned a B or better cumulative test & quiz average. Algebra 1 is also the entry course for students who took 8th grade Algebra 1 who were unsuccessful in mastering the course curriculum and would benefit from a review of Algebra 1 before progressing to more accelerated math courses at GHS. Algebra 1 presents the core curriculum and additional advanced studies in quadratic and exponential functions.

- Students who earn a final grade of C or better in Algebra 1 enter Geometry A in Grade 10. Students who do not earn the minimum final grade in Algebra 1 would enter Geometry B in Grade 10 and continue in the Row 2 sequence.
- Students who earn a final grade of C or better in Geometry A enter Algebra 2A in Grade 11. Students who do not earn the minimum final grade in Geometry A would enter Algebra 2B in Grade 10 and continue in the Row 2 sequence.
- Depending on their teacher's recommendation and final grade in Algebra 2A, students may be eligible to take one of four senior courses. Students in this sequence may choose in 12th grade to take Topics in Mathematics, College Algebra and Trigonometry, or Statistics 1 & 2. With teacher recommendation and a final grade of C+ or better in Algebra 2A, students may choose to take Precalculus 1 & 2 in Grade 12.

#### **Row 4. Grade 9 Entry Course: Geometry A**

- Students who completed Grade 8 Algebra and earned a test & quiz average of a C+ or below enter Geometry A for 9th grade. Geometry A presents the core geometry curriculum with additional advanced studies in trigonometry, proofs, geometric probability, and transformations on the coordinate plane.
- Students who successfully complete Geometry A with a final grade of C or better progress to Algebra 2A in Grade 10. Students who do not earn the minimum final grade in Geometry A would enter Algebra 2B in Grade 10 and continue in the Row 2 sequence.
- A student who successfully completes Algebra 2A can take College Algebra and Trigonometry in Grade 11 and then elect to take either Topics in Math or Statistics 1 & 2 for their senior year.
- Students who earn a final grade of C+ or better in Algebra 2A may elect to take Precalculus 1 & 2 in Grade 11. With teacher recommendation and a minimum final grade of a C in Precalculus 1 & 2, students may opt to take Calculus in Grade 12.
- Of note, students in Geometry A who earn a final grade of A- or better grade in both Algebra 1 and Geometry A AND who have their teacher's recommendation AND successfully complete summer coursework from the Math Program Administrator, which includes a minimum passing score on a placement test, may accelerate into Honors Algebra 2 in the sequence you see in Row 5.
- Also of note, students in Algebra 2A who earn a final grade of A- or better grade AND who have their teacher's recommendation AND successfully complete the Greenwich Public Schools summer Bridge to AP Precalculus course may accelerate into Advanced Placement Precalculus in the sequence you see in Row 5. There will be no exceptions to these prerequisites to enroll in Advanced Placement Precalculus from Algebra 2A.

#### **Row 5. Grade 9 Entry Course: Honors Geometry**

- Students who successfully completed 8th grade Algebra and maintained a cumulative test & quiz average of a B- or better enter Honors Geometry for 9th grade. Honors Geometry presents the accelerated geometry curriculum with further advanced studies in trigonometry, including Law of Sines and Cosines, and radian measurement.
- Students who earn a final grade of B or better in Honors Geometry progress to Honors Algebra 2 in Grade 10. Students who do not earn the minimum final grade in Honors Geometry would enter Algebra 2A in Grade 10 and continue in the non-honors sequence in Row 4.
- Students who earn a final grade of B- or better in Honors Algebra 2 may take Advanced Placement Precalculus in Grade 11. If a student does not successfully meet the B- minimum prerequisite grade, they would move into the non-honors sequence in Row 4.
- Students who earn a minimum final grade of a B in Honors Algebra 2 may take Advanced Placement Statistics either junior or senior year or take it concurrently with another math course to earn a fifth credit in math or as a STEM elective credit.

- After completing Advanced Placement Precalculus, there are a variety of senior math courses students may opt to take, including Statistics 1 & 2, Calculus or Advanced Placement Statistics. With teacher recommendation and a final grade of a B or better in Advanced Placement Precalculus, students may elect to take Advanced Placement AB Calculus, whose curriculum is the equivalent of one semester of college calculus. Students earning a final grade of a B+ or better in Advanced Placement Precalculus may elect to take Advanced Placement BC Calculus, whose curriculum is the equivalent of two semesters of college calculus.

**Row 6. Grade 9 Entry Course: Algebra 2A**

- Students who passed 8th grade Honors Geometry and earned a test & quiz average of a C+ or lower enter Algebra 2A for 9th grade. Algebra 2A presents the core advanced algebra curriculum with additional advanced studies in series and sequences, exponential and logarithmic functions and rational functions.
- As stated in Row 4, students who earn a final grade of C+ or better in Algebra 2A progress to Precalculus 1 & 2 in Grade 10. A student who does not meet the minimum prerequisite would take College Algebra and Trigonometry in Grade 10 and progress through the course sequence in Row 4.
- After completing Precalculus 1 & 2 with a minimum final grade of C, students in this sequence would progress to Calculus in Grade 11. Students who earn a minimum final grade of a B in Precalculus 1 & 2 may take Advanced Placement Statistics junior year or take it concurrently with another math course to earn a fifth credit in math or as a STEM elective credit. With teacher recommendation and a minimum final grade of an A- in Precalculus 1 & 2, students may elect to take AP Calculus AB in Grade 11.
- With teacher recommendation and successful completion of Calculus, students may elect to take Statistics 1 & 2, Advanced Placement Statistics, or Advanced Placement AB Calculus in Grade 12.
- Of note, if a 9th grader in Algebra 2A who earns a final grade of A- or better grade AND who has their teacher's recommendation AND successfully complete the Greenwich Public Schools summer Bridge to AP Precalculus course may accelerate into Advanced Placement Precalculus in the sequence you see in Row 7. There will be no exceptions to these prerequisites to enroll in Advanced Placement Precalculus from Algebra 2A.

**Row 7. Grade 9 Entry Course: Honors Algebra 2**

- Students who successfully completed 8th grade Honors Geometry and maintained a test & quiz average of a B or better enter Honors Algebra 2 for 9th grade. Honors Algebra 2 presents the advanced and comprehensive algebra curriculum with additional studies in trigonometric functions and conic equations.
- Students who earn a final grade of B- or better in the Honors Algebra 2 would enter Advanced Placement Precalculus in Grade 10. If a student does not successfully meet the B- minimum prerequisite grade, they would enter Precalculus 1 & 2 in Grade 10 and progress through the course sequence in Row 6.
- Students who earn a minimum final grade of a B in Honors Algebra 2 may take Advanced Placement Statistics either sophomore, junior or senior year or take it concurrently with another math course to earn a fifth credit in math or as a STEM elective credit.
- With teacher recommendation and a final grade of a B or better in Advanced Placement Precalculus, students may elect to take Advanced Placement AB Calculus in Grade 11, whose curriculum is the equivalent of one semester of college calculus. Students earning a final grade of a B+ or better in Advanced Placement Precalculus may elect to take Advanced Placement BC Calculus in Grade 11, whose curriculum is the equivalent of two semesters of college calculus. If a student does not successfully meet the B minimum prerequisite final grade in Advanced Placement Precalculus, they

would enter Calculus in Grade 11 and progress through the course sequence in Row 6 in Grade 12 math courses.

- With teacher recommendation, students who successfully complete Advanced Placement BC Calculus may elect to take Honors Advanced Calculus in Grade 12, learning applications of integration, vector-valued functions, partial derivatives and other advanced topics in calculus.

**Row 8. Grade 9 Entry Course: Advanced Placement Precalculus**

- Students who successfully completed Middle School Honors Algebra 2 and maintained a test & quiz average of a B- or better enter Advanced Placement Precalculus for 9th grade. Advanced Placement Precalculus presents an advanced algebra review with additional studies in trigonometric functions, vectors, parametric equations, matrices and polar coordinates. Students enrolled in this course are expected to take the corresponding national Advanced Placement exam given in May.
- With teacher recommendation and a final grade of a B or better in Advanced Placement Precalculus, students may elect to take Advanced Placement AB Calculus in Grade 10, whose curriculum is the equivalent of one semester of college calculus. Students earning a final grade of a B+ or better in Advanced Placement Precalculus may elect to take Advanced Placement BC Calculus in Grade 10, whose curriculum is the equivalent of two semesters of college calculus. If a student does not successfully meet the B minimum prerequisite final grade in Advanced Placement Precalculus, they would enter Calculus in Grade 10 and progress through the course sequence in Row 6.
- With teacher recommendation, students who successfully complete Advanced Placement BC Calculus may elect to take Honors Advanced Calculus and/or Advanced Placement Statistics in Grade 11. The Honors Advanced Calculus curriculum presents applications of integration, vector-valued functions, partial derivatives and other advanced topics in calculus.
- With teacher recommendation and completion of Honors Advanced Calculus, students may elect to take Honors Linear Algebra and/or Advanced Placement Statistics in Grade 12. The Honors Linear Algebra curriculum presents matrix theory and linear algebra with applications to physics, engineering and a variety of social and natural sciences.