NGHS Mathematics Department 2025-2026 Course Descriptions and Recommendations.

STANDARD TRACK

▶Course Sequences:

▶The gray-shaded box indicates the last course the student must complete to satisfy graduation requirements. Courses in BOLD indicate a math credit. Courses not in bold indicate elective credit.

Pattern of Grades in Standard Math I, II, and III	Next Math Course
high A's	Honors Math IV
A's, B's, or high C's	Math IV
low C's or D's	Math IV

		Typical Sequences for Standard Students under the Future Ready Core		
	Year 1	Year 2	Year 3	Year 4
A	Math I	Math II	Math III	Math IV
B	Math II	Math III	Math IV	AP Statistics

HONORS/AP TRACK

▶Course Sequences:

▶The gray-shaded box indicates the last course the student must complete to satisfy graduation requirements. Courses in BOLD indicate a math credit. Courses not in bold indicate elective credit.

Pattern of Grades in Honors Math I, II, and III	Next Math Course
A's or B's,	AP Precalculus
C's or D's	Honors Math IV

		Typical Sequences for Honors Students under the Future Ready Core		
		Year 1	Year 2	Year 3	Year 4
C		Honors Math I	Honors Math II	Honors Math III	AP Precalculus
D		Honors Math II	Honors Math III	AP Precalculus	AP Calculus AB/BC and/or AP Statistics*
E		Honors Math III	AP Statistics*	AP Precalculus	AP Calculus AB or AP Calculus BC
			AP Precalculus	AP Calculus AB or AP Calculus BC	AP Statistics*

*AP Statistics may also be taken in the same year as any other AP math course.

*Summer GCS courses offered through the district in *Ready for Math 1, 2, 3* and highly encouraged for student success.

Expectations for Honors Courses

- Evidence of mastery of previous course topics.
- Motivation towards the study of mathematics at a rigorous and abstract level.
- Problem solving creativity and persistence.
- Personal responsibility in the learning process.
- Intellectual curiosity.
- Time outside of the school day to prepare and complete work.

Math 4th Courses

Math IV (Honors and Standard)

- Focus is on functions and statistical thinking, continuing the study of algebra, functions, trigonometry and statistical concepts previously experienced in NC Math 1-3.

- The course is designed to be a capstone to introductory statistical concepts. Additionally, the course intentionally integrates concepts from algebra and functions to demonstrate the close relationship between algebraic reasoning as applied to the characteristics and behaviors of more complex functions.

- In many cases, undergraduate students majoring in non-STEM fields will take an entry-level Algebra or Introductory Statistics course. Students will be prepared for college level algebra and statistics or as a bridge to prepare students for Precalculus or other advanced math courses.

AP Precalculus

- Focus is to build upon the study of algebra, functions, and trigonometry experienced in previous high school mathematics courses.

- This course will build on students' algebraic skills and understanding of functions to delve into real world phenomena and to deepen understanding of the functions in the course.

- This course is designed for students pursuing careers in STEM-related fields. Students will be prepared for Calculus, AP Calculus and any entry-level college course.

- This course provides an opportunity for students to earn college credit and placement for their work and stand out in the admissions process. Qualifying AP Precalculus Exam scores can fulfill a college math requirement, so students can focus on courses most central to their major.

Key Differences between AB and BC Calculus

▶Pre-calculus is a prerequisite for both types of calculus.

▶Calculus AB covers the first semester of calculus only (Calculus I)

▶Calculus BC covers the first two semesters or a whole year of calculus (Calculus I and II courses combined)

▶All of the topics covered in Calculus AB are also found in BC.

▶Calculus BC goes further than AB, touching on additional mathematical concepts.

▶Because it includes more concepts, Calculus BC is a more fast-paced course than AB.

Calculus AB	Calculus BC
Functions, Limits, and Graphs	Functions, Limits, and Graphs
Derivatives	Derivatives
Applications of Derivatives	Applications of Derivatives
Integrals	Integrals
Applications of Integrals	Applications of Integrals
	Polynomial Approximations and Series
	Series of Constants
	Taylor Series

AP STAT

- Math 3 is a prerequisite for AP Stat.

- AP Stat is an introductory course in statistics. More of us will use statistics than will use calculus, trigonometry, or college algebra; that makes AP Statistics your opportunity to learn how to produce and use data, to recognize bad data, and to make decisions with data. Statistics allows you to drive data, rather than being driven by it.

- If you don't do your homework, AP Stat is hard. But it's not like a regular math class—we don't have problem after problem in which the answer is "4" or "x + 3."