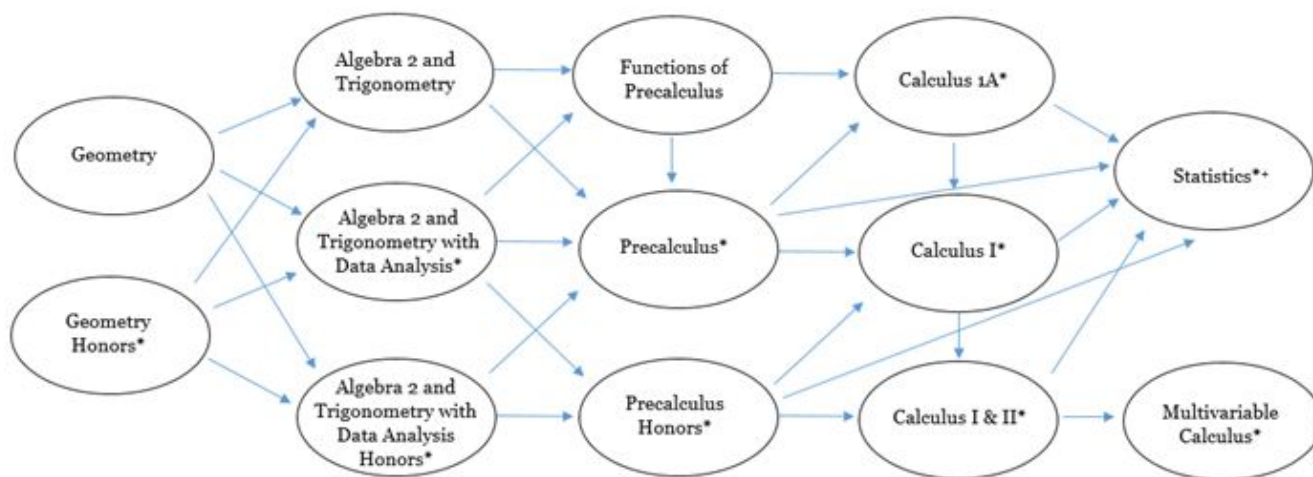


The Mathematics Department at Holton-Arms offers a sequence of courses that cover traditional college preparatory material. Holton recognizes that all girls do not acquire mathematical skills at the same rate or develop the ability for abstract thinking at the same age. Therefore, there is no ninth grade mathematics course. Rather, our offerings provide a variety of placement options at a given grade level. The goal of placement decisions is to offer each girl a course that challenges her and allows her to take risks, but at the same time provides her with a reasonable opportunity to experience the satisfaction of success.

The following chart provides several different options for a four-year program of study. Those courses marked by an asterisk (*) require department approval before a student can enroll. Those students taking Geometry or Algebra 2 Trig with Data Analysis in their ninth grade year should have completed Algebra I or Algebra I and Geometry, respectively, in middle school. In a student's junior and senior year, there is an option to take two mathematics courses concurrently, one traditional course of study and a full year of Statistics, as long as the student has successfully completed Algebra 2 Trig. In addition, there are several trimester minor courses that are offered for students who want to expand their study of mathematics.

Upper School Math Sequence



*Honors and Advanced level course require departmental approval

+Statistics may be taken as a 6th Major, or in addition to another full year math course

Trimester Minor Electives:
(open to all grade levels and
dependent on enrollment)

History of Mathematics
Model Thinking
Applications of Discrete Mathematics
Architectural Design with SketchUp
Mathematical Modeling
Geometry in Nature, Art, and Architecture

Teachers recognize the importance of having students use computational thinking and data analysis throughout the curriculum. In many courses, including Algebra 2 & Trigonometry and Precalculus, students are given the opportunity to learn about the modeling of functions by using data taken from real-world situations. The girls learn how to apply data analysis to data taken from disciplines including science, politics, and current events. In addition, our Geometry course offers students the opportunity to use technology to solve applied problems.

Students will be engaged in mathematics through a variety of in-class activities, including direct instruction, explorations using technology, and small group problem-solving. In addition, individual conversations and one-to-one help sessions between a student and her mathematics teacher are an integral part of the Holton experience.

Three credits are required for graduation: one of which is Algebra 2 & Trigonometry.

Frequently Asked Questions

What is the difference between the Honors classes and the other course offerings?

Honors classes are offered to challenge students who are capable of working independently, require less review, and have a desire to think deeply about mathematics. For example, while the main content of the Geometry and Geometry Honors courses are very similar, Geometry Honors students will explore more open-ended, abstract questions and will be expected to have a stronger grasp of basic principles of Algebra I. The Geometry students will review key algebra skills as they work through the content of the course.

Can students move between the different levels (Honors, Regular, etc.) of mathematics courses?

Students have the ability to move between the levels when course selection decisions are made in the spring. Careful consideration is given to the course load of the student and to her performance in her current level of mathematics.

What is the difference between Calculus I and Calculus I & II?

Calculus I & II is an extension of Calculus I. The Calculus I & II curriculum differs in scope. Calculus I includes techniques and applications of the derivative, the definite integral, and the Fundamental Theorem of Calculus. Calculus I & II includes all topics in Calculus I, plus others such as parametric, polar, and vector functions, and series. Because Calculus I & II covers approximately two semesters of college calculus compared to one semester in Calculus I, a big difference in the courses is the pace and the requirements of students outside of class.

What is the difference between Calculus I and Calculus 1A?

Calculus 1A is offered to students who intend to continue their study of calculus in college. It provides a conceptual introduction to both differentiation and integration with an emphasis on applications. The

slower pace of the course as well as the review of algebraic skills make the calculus concepts accessible to a broad spectrum of mathematics students.

Can you take more than one math class in a given year?

A student may take Statistics at the same time as she takes Precalculus or one of the Calculus course offerings. Approximately one-third to one-half of all students taking Statistics are taking another mathematics course concurrently. In addition, students can take additional mathematics trimester electives.

Further questions?

Contact: [Kate Mitchell](#)

Mathematics Department Chair, 301-767-2360