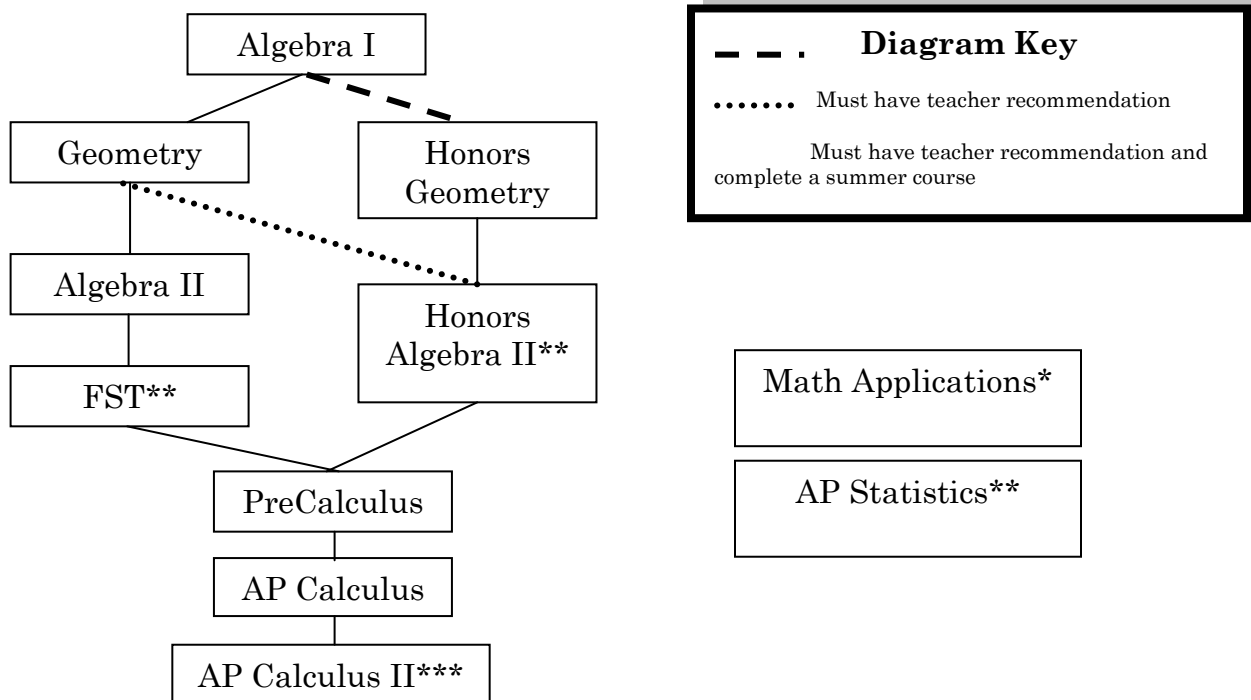


# Mathematics Curriculum

The mathematics department of Holy Family Catholic High School serves the needs of all students. This means preparing students for the pursuit of science and math beyond high school as well as developing necessary life skills. Students will be expected to use mathematics as a tool to learn the reasoning skills to look beyond the surface of a situation in order to see the realities and assumptions that lie beneath. Additionally, in a world in which technology is an integral yet often abused part of our lives, students will be taught appropriate and ethical use of such advances.



*Successful completion of Algebra II and three credits of mathematics are required for graduation.*

Students enter Holy Family Catholic High School with diverse mathematic backgrounds. Consequently, we offer a variety of courses to meet the needs of all of our students. Freshmen have a number of options when starting Holy Family Catholic High School. Freshmen who would like to take a course other than Algebra I must pass a placement test given in the summer and have appropriate course work prior to high school. All incoming freshmen are encouraged to take a placement test.

- \* Math Applications is a senior math course that can be taken after successful completion of Algebra II or Honors Algebra II
- \*\* AP Statistics can be taken anytime after successful completion of Honors Algebra II or Functions, Statistics, and Trigonometry
- \*\*\* AP Calculus II can be taken during the same academic year as AP Calculus I

All students will need TI-83+ or TI-84+ graphing calculators.  
 AP Calculus and AP Calculus BC students may have a TI-89

**203/204 Algebra I** **1 credit**

Algebra I will cover writing, graphing, and solving linear, quadratic, and absolute value equations and inequalities. Additionally, the class will include the topics of exponents, polynomials, and factoring.

**211/212 Geometry** **1 credit**

*Prerequisite: Algebra I at Holy Family or qualifying score on summer Math Placement Test I.*

**Geometry** will cover topics of reasoning skills, constructions, line and angle conjectures, linear equations, properties of triangles, polygon and circle properties, area, volume, surface area, introduction to trigonometry, Pythagorean Theorem, and similarity in a hands-on discovery approach. The course also continues to review and practice topics from **Algebra I**.

**213/214 Honors Geometry** **1 credit**

*Prerequisite: "A" or "B" in Algebra I at Holy Family or qualifying score on the Math Placement Test I.*

This is a fast-paced course with a blend of discovery and proof-driven approaches to the material. The topics covered in **Honors Geometry** will be addressed from this integration of approaches so that not only will students understand many types of proofs, but they will also be able to create many types of proofs in order to draw conclusions. Elementary probability will be introduced.

**221/222 Algebra II** **1 credit**

*Prerequisite: Geometry at Holy Family or qualifying score on the Math Placement Test II.*

**Algebra II** continues the work begun in **Algebra I**. Topics such as linear and quadratic equations, functions, radicals, and polynomials will be explored further. In addition, basic trigonometry, exponential functions, and logarithmic functions will be covered. Elementary probability will be introduced in this course. Students will also be exposed to Excel.

**223/224 Honors Algebra II** **1 credit**

*Prerequisite: Honors Geometry at Holy Family, Geometry at Holy Family with teacher recommendation and completion of a summer course, or qualifying score on the Math Placement Test II.*

All of the topics of **Algebra II** will be covered, although they will be studied in more detail and at a faster pace. Additional topics include: introductory trigonometry and elementary statistics in preparation for **PreCalculus**.

**226/227 Functions, Statistics, and Trigonometry** **1 credit**

*Prerequisite: Algebra II. A "C" or higher in Algebra II is highly recommended.*

This is a full-year course that covers functions and their properties, trigonometry and its applications, and fundamental probability and statistics. Covered topics include: reasoning skills, right triangle ratios, the six trigonometric functions, identities, vectors, and inverse trigonometric functions.

**230 Hybrid Functions, Statistics, and Trigonometry** **1 credit**

*Prerequisite: Honors Algebra II or an "A" in Algebra II*

While covering the same material as the traditional FST course, the hybrid version combines traditional classroom and online experiences to deepen understanding of the concepts. The majority of the work is completed online which allows for flexibility in students' schedules. Students need to be organized and self-disciplined with strong time-management skills in order to be successful in this unique dynamic.

**231/232 PreCalculus** **1 credit**

*Prerequisite: Honors Algebra II or Functions, Statistics, and Trigonometry*

**PreCalculus** is a challenging year course that prepares students to take college level calculus. The primary topics include: functions, trigonometry (with application and identities), and abstract thinking.

**233/234 AP Calculus I** **1 credit**

*Prerequisite: PreCalculus*

**Advanced Placement Calculus** is a college level course. Topics will include further work with limits, derivatives, and integration with considerable focus on applications. Students passing the **AP Calculus AB** exam in spring may earn college credit and/or advanced standing at their chosen post-secondary institutions.

**239 AP Calculus BC** **.5 credit**

*Prerequisite: AP Calculus or current enrollment in AP Calculus with teacher recommendation.*

**Advanced Placement Calculus BC** is a semester-long college level course. Topics include parametric, polar and vector equations, integral applications, polynomial approximations, and the use of series including the Taylor and Maclauran series. Students passing the **AP Calculus BC** exam in spring may earn college credit and/or advanced standing at their chosen post-secondary institutions.

**240/241 AP Statistics** **1 credit**

*Prerequisite: Honors Algebra II or FST.*

**Advanced Placement Statistics** is a college level course in probability and statistics. Topics include elementary probability, binomial probability, hypothesis testing, regression and correlation, normal distributions, Chi-Squared and F distributions. A passing score on the AP exam in spring may result in advanced standing and/or college credits.

**246/247 Algebra II Math Applications** **1 credit**

*Prerequisite: Algebra II*

In this year-long project-based course, students will review and reinforce concepts in general math applications while expanding their knowledge base. The course is designed as an option for seniors who do not need advanced math courses after they graduate but would like to have a fourth math class. Mathematical concepts will be applied in a variety of collaborative projects using real-world data and situations. Students will develop problem-solving skills and an understanding of the importance of mathematics