

Mathematics Curriculum

The Lutheran High mathematics curriculum is designed to achieve the following goals:

- Students will learn about the world God created and the harmony of the laws that govern it.
- Students will learn about ethics and values as it related to numbers and statistics and their walk with God.
- Students will be able to communicate in the language of mathematics.
- Students will learn to encode and decode mathematical expressions.
- Students will be able to make comparisons with mathematical expressions.
- Students will be able to develop problem solving strategies.
- Students will learn to encode and decode graphs.

Therefore the mathematics curriculum is as follows:

Grade: 9 - Algebra I (1 credit – 2 semesters)

A continuation and expansion of the concepts developed in previous mathematics courses, this course explores the structure and **logic** of the number system and develops skills in applying some of the algebraic concepts to the solving of theoretical and practical problems. This is a first step toward taking higher math courses.

Note: All freshmen will be required to take this math course unless they pass the Algebra I proficiency test.

Pre-requisites: None

Special materials: scientific calculator

Grade: 9-10 – Geometry (1 credit – 2 semesters)

This course is designed to increase the student's knowledge of geometric shapes and their relationships. Topics include lines, planes, segments, angles, polygons (especially triangles) and circles. Students will be introduced to formal direct proofs as well as indirect proofs of theorems.

Pre-requisites: Algebra I or MELHS Algebra I Proficiency Exam

Special materials: scientific calculator

Grade: 10-11 – Algebra II (1 credit – 2 semesters)

Algebra II is an in-depth continuation of the materials studied in Algebra I with more emphasis on the theoretical aspects of algebra as it examines the real and imaginary number system. The course also touches on such topics as logarithms, exponential growth, and matrices.

Pre-requisites: Geometry

Special materials: scientific calculator

Grade: 12 – Topics of Math (1 credit – 2 semesters)

This course is designed to review skills previously learned in Algebra and Geometry. In addition, it will provide an introduction to Trigonometry and a strong base for introductory-level college math course.

Pre-requisites: Geometry

Special materials: scientific calculator

Grade: 11-12 – Pre-Calculus (1 credit – 2 semesters)

This course provides good preparation for college courses in calculus, abstract algebra and probability. This course covers topics such as higher level work with polynomials, matrices, systems of equations, and trigonometry. The course is also designed to help facilitate the student's move to college level math courses.

Pre-requisites: Algebra II

Special materials: scientific calculator

Grade: 12 – AP Calculus (1 credit – 2 semesters)

This course covers in detail the material of first year Calculus. Topics covered include functions, limits, derivations and integrals. Applications of derivations and integrals will also be covered.

Pre-requisites: Pre-Calculus

Special materials: scientific calculator