

Knowledge and appreciation of mathematics is essential to students' intellectual development. Its beauty, its applications and its central place in many other disciplines commend it as a subject that can be understood and enjoyed by all learners. Its study helps students to develop thinking skills, organize their thoughts, understand and create logical arguments, and make valid inferences. Through cooperative learning with students and teachers, students experience the importance of working together and the rewards that come from building community.

The Math Department of Cretin-Derham Hall provides math offerings for students of all ability levels. There is a three-year graduation requirement. This requirement may be met by a variety of combinations that fit individual students' abilities and needs. There is no specific course sequence required in the Math Department. All math courses are year long.

University of Minnesota math requirement:

Students who plan to apply to the Carlson School of Management, the College of Biological Sciences, or the College of Science and Engineering at the University of Minnesota, will need to have at least a fourth year of math in Analysis (Advanced or Honors). The University of Minnesota now requires four years of high school math. Our Math Topics course counts as a fourth year math class, but not for the above colleges at the University.

A teacher recommendation is necessary for placement in an honors course.

Possible Math Sequences:

GRADE 9	GRADE 10	GRADE 11	GRADE 12
Introduction to Algebra -----	Conceptual Algebra I -----	Geometry -----	Algebra II/Trig
Introduction to Algebra -----	Algebra I -----	Geometry -----	Algebra II/Trig
Algebra I -----	Geometry -----	Algebra II/Trig -----	Math Topics
Algebra I (Adv) -----	Geometry (Adv) -----	Algebra II/Trig (Adv) -----	Analysis (Adv)
Geometry (Adv) -----	Algebra II/Trig (Adv) -----	Math Topics -----	Analysis (Adv)
Geometry (Adv) -----	Algebra II/Trig (Adv) -----	Analysis (Adv) -----	AP Calculus (Hon) OR AP Statistics (Hon)
Geometry (Hon) -----	Algebra II/Trig (Hon) -----	Analysis (Hon) -----	AP Calculus (Hon) OR AP Statistics (Hon)

INTRODUCTION TO ALGEBRA

Year long

This is a course designed to prepare students who need extra time to ready themselves for the algebra sequence. Review of basic skills is stressed throughout the year. Major topics include fractions, decimals, integers, percents, exponents, polynomials, equations, and graphing. Students completing this course will move on to Algebra I.

Grades 9, 10

ALGEBRA I**Year long**

This course covers basic algebraic skills and concepts. Topics include linear and quadratic equations, graphing, factoring, polynomials, radicals, and operations with rational expressions. Recognition of proper problem-solving techniques is stressed, along with thorough solution techniques.

Grades 9, 10

CONCEPTUAL ALGEBRA I**Year long**

This course is designed for tenth grade students needing math support and will include additional mathematical skill building. This course covers basic algebraic skills and concepts. Topics include linear and quadratic equations, graphing, factoring, polynomials, radicals, and operations with rational expressions. Recognition of proper problem-solving techniques is stressed, along with thorough solution techniques.

Students will be placed in this class by teacher recommendation only.

Prerequisite: Introduction to Algebra

Grade 10

ALGEBRA I – Advanced**Year long**

This course covers algebraic topics in greater depth than the Algebra I course. Topics include linear and quadratic equations, graphing, factoring, polynomials, radicals, and operations with rational expressions. While these topics are similar to those offered in the Algebra I course, more emphasis is placed on theory and application in this advanced version.

Grade 9

GEOMETRY**Year long**

This course considers the central topics in Euclidean geometry. Emphasis is given to geometric properties and informal proof. Topics include congruence, parallel and perpendicular lines, similarity, areas and volumes, circles, and coordinate geometry.

Prerequisite: Algebra I

Grades 10, 11

GEOMETRY - Advanced**Year long**

This is a course in plane and solid Euclidean geometry. Skills in deductive reasoning are developed. The concept of formal proof is introduced. Topics to be studied include congruence, parallel and perpendicular lines, similarity, areas and volumes, circles, and coordinate geometry.

Prerequisite: Algebra I -Adv. or instructor's permission or demonstration of Algebra competency

Grade 9, 10

GEOMETRY - Honors**Year long**

This is a course in plane and solid Euclidean geometry. Skills in deductive reasoning are developed. The concept of formal proof is stressed. Topics to be studied include congruence, parallel and perpendicular lines, similarity, areas and volumes, circles, and coordinate geometry. This course relies heavily on higher-order thinking skills.

Prerequisite: Demonstration of Algebra competency or instructor's permission

Grade 9

ALGEBRA II / TRIG.**Year long**

This course covers linear and quadratic equations, polynomials, rational expressions, rational exponents, complex numbers, conic sections, radicals, and trigonometry.

Prerequisite: Geometry

Grades 11, 12

ALGEBRA II / TRIG - Advanced**Year long**

Topics to be studied in this course include linear and quadratic equations, polynomials, rational expressions, rational exponents, complex numbers, conic sections, radicals, and trigonometry. While topics are similar to those in Algebra II, more emphasis is placed on theory and application in this course. A graphing calculator is required and is an integral part of this course.

Prerequisite: Geometry - Adv. or instructor's permission

Grades 10, 11, 12

ALGEBRA II / TRIG. – Honors**Year long**

Topics to be studied in this course include linear and quadratic equations, polynomials, rational expressions, rational exponents, complex numbers, conic sections, radicals, and trigonometry. While topics are similar to those in Algebra II, more emphasis is placed on depth of learning and application of concepts. A graphing calculator is required and is an integral part of this course.

Prerequisite: Geometry - Honors

Grade 10

ANALYSIS – Honors**Year long**

This course consists of an in-depth study of functions: polynomial, exponential, logarithmic, and trigonometric. It also includes a study of complex numbers, analytical geometry, sequences, series, probability and statistics. A graphing calculator is required and is an integral part of the course. This course also acts as a preparatory class for students who wish to take Calculus the following year. Analysis - Honors is a rigorous math class and requires advanced thinking and study skills.

Prerequisite: Algebra II/Trig. - Honors

Grade 10, 11

ANALYSIS – Advanced**Year long**

This course consists of an in-depth study of functions: polynomial, exponential, logarithmic, and trigonometric. It also includes a study of complex numbers, analytical geometry, sequences, series, probability and statistics. A graphing calculator is required and is an integral part of the course. This course also acts as a preparatory class for students who wish to take Calculus the following year.

Prerequisite: Algebra II / Trig-Adv. or instructor's permission

Grade 11, 12

ADVANCED PLACEMENT CALCULUS - Honors**Year long**

This is a broad, in-depth study of single-variable Calculus that is designed to prepare students for the Advanced Placement test. (AB) Topics covered include limits and continuity, differentiation and its applications, integration and its applications and graphing. The graphing calculator is an integral part of the course. Students who pass the Advanced Placement test receive credit and advanced standing at most colleges and universities.

Prerequisite: Analysis – Honors or Advanced and instructor's permission

Grade 11, 12

ADVANCED PLACEMENT STATISTICS – Honors**Year long**

This course introduces students to the major concepts and tools for collecting, analyzing and drawing conclusions from data. Students who pass the Advanced Placement test receive credit and advanced standing at most colleges and universities. Graphing calculators are required.

Prerequisite: Analysis – Honors or Advanced and instructor's permissions

Grade 11, 12

MATH TOPICS: A Survey of Applications**Year long**

This course is designed for students who wish to develop a math background suitable for a liberal arts education, with emphasis on applications of various topics. Course topics include probability, statistics, graphs, functions, matrices, sequences and series, discrete math and trigonometry.

Prerequisite: Algebra II / Trig

Grade 11, 12