

## Calculus Gr. 11-12 Elective

Calculus is for the college bound student who plans to take Calculus at the college level. This class does not replace a college level Calculus course. The course will include pre-calculus concepts, differentiation, integration, and limits.

### Topics Covered:

- Review of Linear Functions
- Limits
- Rules for Differentiation
- Applying the Derivative to Graphing
- Exponential and Logarithmic Functions
- Integration Techniques
- Definite Integral
- Derivatives and Integrals of Trigonometric Functions

## General Information

Each course is 2 trimesters in length. Each trimester corresponds to 1 credit of mathematics.

Students are required to complete 6 credits of mathematics in order to graduate from DNH.

Students are required to complete at least Algebra II in order to attend a four-year university.

Students are required to obtain at least a "C" or better in order to advance to the next class.

Students are required to have a scientific calculator for Geometry and a graphing calculator for all other courses listed in this brochure.



# High School Mathematics

- \*Geometry
- \*Algebra II
- \*Pre – Calculus
- \*Calculus

Dike-New Hartford CSD

DNH CSD

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**Pre – Calculus**  
**Gr. 11-12 Elective**

**Pre – Calculus is an in-depth study of polynomial, rational, logarithmic, exponential, rational, and trigonometric functions. Using technology, students will explore equations and graphs to find critical points. This class is for the college bound student who plans to enter a field of study that includes mathematics or mathematical concepts.**

**Topics Covered:**

- Graphing Functions
- Translating Functions
- Polynomial and Rational Functions
- Exponential and Logarithmic Functions
- Trigonometric Functions
- Analytic Trigonometry
- Additional Topics in Trigonometry
- Sequences, Series, and Probability
- Limits and Introduction to Calculus

**Algebra II**  
**Gr. 10-12 Elective**

**Algebra II is an extension of the fundamental principles of Algebra within the domain of natural numbers and expanding to include complex numbers.**

**Topics Covered:**

- Review Solving Equations and Inequalities
- Review Graphing Equations and Inequalities
- Writing Equations of Lines
- Linear Regressions
- Solving Systems of Linear Equations
- Graphing Equations in Three Variables
- Solving Systems of Three Equations
- Matrices
- Polynomials
- Quadratics

**Geometry**  
**Gr. 9 – 12 Elective**

**Geometry introduces the study of points, segments, triangles, polygons, circles, solid figures and their associated relationships as a mathematical system. Emphasis is placed on the description and use of inductive, deductive, and intuitive reasoning skills. Powers of abstract reasoning, spatial visualization and logical reasoning patterns are improved through this course.**

**Topics Covered:**

- Basics of Geometry
- Reasoning and Proof
- Perpendicular and Parallel Lines
- Congruent Triangles
- Properties of Triangles
- Quadrilaterals
- Transformations
- Similarity
- Right Triangles and Trigonometry
- Circles
- Area of Polygons and Circles
- Surface Area and Volume