

# MATHEMATICS

<u>COURSE TITLE</u>	<u>UNITS</u>	<u>GRADES OFFERED</u>
Integrated Mathematics	1	9
Common Core Math Support	.1 - .5 <sup>+</sup>	9 10 11
Algebra 1	1	9
Geometry	1	9 10
Algebra 2	1	9 10 11
Pre-Calculus	1	10 11 12
Calculus Honors	1	11 12
AP Calculus AB	1	11 12
AP Calculus BC	1	11 12
AP Statistics	1	12
College Algebra	.5	11 12
Trigonometry	.5	11 12
Statistics 1	.5	11 12
Statistics 2	.5	11 12
SAT	.5 <sup>+</sup>	10 11 12

+ Units do not count toward mathematics graduation requirement.

## Integrated Mathematics

**1 Unit, 5 Periods**

This course will focus on the acquisition of the basic math skills, introductory algebra concepts, and introductory geometry concepts. Real-world and technical applications will be extended and analyzed. Materials related to statistical concepts, data organization, interpretation, measurement, and modeling are utilized. Career awareness, applications, calculator, and computer activities are integrated where appropriate. **Prerequisites: Placement determined by benchmark scores, teacher recommendation, and student ability.**

## Common Core Math Support

**.1-.5 Unit each semester, 1-5 Periods**

This class is designed to offer support for students to work on their algebraic skills needed in order be successful with the common core standards for mathematics in Algebra 1. Students that are eligible for this course must have a teacher recommendation from their Integrated Mathematics/Pre-Algebra Teacher in the fall or their Algebra 1 teacher in the Spring. Course may be repeated for credit.

## Algebra 1

**1 Unit, 5 Periods**

This course introduces the student to the language and fundamentals of algebra and the real number system. Students develop an understanding of important concepts, skills, procedures and ways of thinking, reasoning, and modeling in algebra. Students investigate math concepts, utilizing interactive problems in motivating everyday situations and developing mathematical skills through investigations and projects. **Prerequisites: Successful Completion of Pre-Algebra or Integrated Mathematics. College Prep or Honors level determined by a data-driven teacher recommendation process.**

## Geometry

**1 Unit, 5 Periods**

This course includes plane geometry and components of solid, coordinate, and transformational geometry. It helps the student to develop spatial, inductive, and deductive reasoning skills. The course includes computer and calculator activities and real life applications. Students investigate geometry concepts utilizing interactive problems in everyday situations and develop mathematical skills through investigations, projects, and modeling. **Prerequisites: Successful Completion of Algebra 1. College Prep or Honors level determined by a data-driven teacher recommendation process.**

## Algebra 2

**1 Unit, 5 Periods**

This course builds upon concepts learned in Algebra I and Geometry and expands to include work in functions and relations, polynomial functions, exponentials and logarithms, rational algebraic expressions, irrational algebraic expressions, and sequences and series. A heavy emphasis is placed upon non-routine problem solving, modeling, and math applications. Technology is integrated where appropriate. Students are encouraged to have TI-84+ calculator. **Prerequisites: Successful Completion of Algebra 1. College Prep or Honors level determined by a data-driven teacher recommendation process.**

## Pre-Calculus

**1 Unit, 5 Periods**

This course contains topics such as trigonometric functions and their applications, linear regression and curve fitting, probability/statistics, matrices, polar coordinates/parametric equations, complex numbers/infinite series, and limits and derivatives. Non-routine problem solving, use of calculator, and computer activities are heavily integrated throughout the course. The Honors level covers content in more depth. Independent study projects are required. **Use of graphing calculator required. Prerequisites: Successful Completion of Algebra 2. College Prep or Honors level determined by a data-driven teacher recommendation process.**

## Calculus Honors

**1 Unit, 5 Periods**

This course is designed to give college bound students the opportunity to learn the concepts of calculus as noted below. The practical aspects of calculus are emphasized without the Advanced Placement Examination preparation. This is a UConn ECE course for registered students. Students may earn UConn credits by fulfilling requirements. **Use of graphing calculator required. Prerequisites: Successful Completion of Pre-Calculus.**

## AP Calculus AB

**1 Unit, 5 Periods**

This course is designed to develop the students' understanding of the concepts of calculus and provide experience with its methods and applications. The course emphasizes a multi-representational approach to calculus, with concepts, results, and problems being expressed geometrically, numerically, analytically, and verbally. The connections among these representations are also important. Through the use of the unifying themes of derivatives, integrals, limits, approximation, and applications and modeling, the course becomes a cohesive course. Students are *expected* to take the Advanced Placement Examination offered by the College Board. This is a UConn ECE course for registered students. Students may earn UConn credits by fulfilling requirements. **Use of graphing calculator required. Prerequisites: Successful Completion of Pre-Calculus. Placement determined by data-driven teacher recommendation and Department Head approval.**

## AP Calculus BC

**1 Unit, 5 Periods**

This course is an extension of Calculus AB. Common topics require a similar depth of understanding. Both courses are challenging and demanding. Students are *expected* to take the Advanced Placement Examination offered by the College Board. This is a UConn ECE course for registered students. Students may earn UConn credits by fulfilling requirements. **Use of graphing calculator required. Prerequisites: Successful Completion of AP Calculus AB. Placement determined by data-driven teacher recommendation and Department Head approval.**

## AP Statistics

**1 Unit, 5 Periods**

The purpose of the AP course in statistics is to introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. AP Statistics is divided into four major themes: exploratory analysis, planning a study, probability, and statistical analysis. Students need to have a graphing calculator and computer technology as tools and are *expected* to take the Advanced Placement Examination offered by the College Board. This is a UConn ECE course for registered students. Students may earn UConn credits by fulfilling requirements. **Use of graphing calculator required. Prerequisites: Successful Completion of Algebra 2. Placement determined by data-driven teacher recommendation and Department Head approval.**

### **College Algebra**

**.5 Unit, 5 Periods**

This course is designed to better prepare students in the area of algebraic understanding before moving on to an undergraduate program. It will focus on problem solving, real-world applications, modeling, and the appropriate use of technology while reinforcing skills learned in Algebra 1 and 2. Course content will include a thorough look at equations and inequalities, systems of equations, functions, data analysis, conics, exponents and logarithms. **Prerequisite: Successful Completion of Algebra 2**

### **Trigonometry**

**.5 Unit, 5 Periods**

Trigonometry is the study of how sides and angles of triangles are related to each other. This course will focus on the concepts of trigonometric functions, relations among these functions, solutions of triangles and their application to real-world problems, circular functions and their graphs including units of measure are also analyzed. **Prerequisite: Successful Completion of Algebra 2**

### **Statistics 1**

**.5 Unit, 5 Periods**

This course provides the student with statistical methods of collecting, organizing, representing, and analyzing data. Principles of probability such as the counting principle, combinations and permutations, and tree diagrams will be explored. **Prerequisite: Successful Completion of Algebra 2**

### **Statistics 2 (Pending Board of Education Approval)**

**.5 Unit, 5 Periods**

This course builds upon the work completed in Statistics 1. Students will focus on the application of statistical methods to make predictions about populations in a real world context. **Prerequisite: Successful Completion of Statistics 1**

### **SAT Prep**

**.5 Unit, 5 Periods**

This course is intended to offer support and practice to help students increase their success on the mathematics portion of the SAT/ACT. Students will review topics covered in the Math SAT/ACT, practice SAT/ACT type problems, complete timed and untimed practice SAT/ACT tests and analyze the results of these practice tests. This class is for review; it is not intended as instruction in new topics in mathematics. Students are encouraged to have TI-84+ calculator.