



# MATHEMATICS

For a Regents Diploma, students are required to earn at least 3 units of credit in Mathematics and pass a regents exam with a grade of at least 65%. Remediation is offered for students who fail the Algebra I regents to help them fulfill this graduation requirement. For an Advanced Regents Diploma, students must earn a grade of at least 65% on ALL three math regents exams - Algebra I, Geometry and Algebra 2.

Students have the opportunity to take many different levels of mathematics to cultivate an interest in mathematics and prepare them for life beyond high school. All mathematics courses are aligned with the standards established by the State Education Department. Students are recommended to specific mathematics classes according to skill levels which are determined by the mathematics teacher, standardized tests, and student performance.

## 9TH GRADE

- Algebra
- Geometry Accelerated

## COURSE SEQUENCING FOR 9TH – 12TH GRADE

### REGENTS DIPLOMA SEQUENCE

Algebra  
 Algebra 1B/Geo 1 or Geometry 1  
 College Bound Math  
 ^ Statistics 1

### ADVANCED REGENTS DIPLOMA SEQUENCE

Algebra  
 Geometry  
 Algebra 2 or Algebra 2A  
 Algebra 2B (if needed) or UHS Stats or Pre-Calculus

**Or**

### ACCELERATED COURSES

Geometry Acc.  
 Algebra 2  
 Pre-Calculus  
 ^ Calculus or UHS Statistics

### IB DIPLOMA SEQUENCE

Geometry Acc.  
 Algebra 2  
 IB Mathematics SL  
 ^ Calculus or UHS Statistics

**Or**

Algebra  
 Algebra 1B/Geo 1 or Geometry 1 or  
 Geometry  
 College Bound Math or Algebra 2A  
 Mathematical Studies IB

## ALGEBRA

(1 CREDIT)

The fundamental purpose of this course is to formalize and extend the mathematics that students learned in the middle grades. There is a focus on real-life applications and word problems that require a high reading level. This more ambitious version of Algebra is designed to prepare students for the Common Core Algebra Regents exam in June. Topics of this course include: algebra processes; systems of equations; inequalities; polynomials; factoring; arithmetic and geometric sequences; statistical regressions; linear, exponential, and quadratic models. A graphing calculator (TI-84+) is highly recommended.

## ALGEBRA 1B/ GEOMETRY 1

(1 CREDIT)

**Prerequisite: completed Algebra but scored 50-64 on the Regents Algebra exam.**

This course is designed for 10th grade students who have failed the Algebra Regents in 9th grade (but passed the course). First semester will focus on mastering Algebra and test taking skills to complete the required exit exam for graduation. Students will receive course credit for this full year course and sit for the January Regents exam. Students that still have not mastered the Algebra Regents in January will need additional support



in the Spring (such as Algebra Fundamentals). The second semester of the course will begin the Geometry curriculum.

### ALGEBRA FUNDAMENTALS

**(CREDIT RECOVERY – 1 CREDIT; ALL OTHERS – ½ CREDIT)**

**Prerequisite:** 11th/12 grade students who have not yet passed the Algebra Regents.

This is an intensive course for students who have not been successful with the Algebra course and Regents or who have not passed the Algebra Regents exam. Students will continue on in their math course sequence as well as being placed in a Fundamentals of Math class. This course meets every day for half a year and will be focused on providing intensive, targeted instruction to prepare students to take the Algebra Regents exam. 10th grade students who failed the Algebra course but scored a 50 or higher on the Algebra Regents can take this course and earn Algebra course credit if they pass the Algebra Regents exam.

### COLLEGE BOUND MATH

**(1 CREDIT)**

**Prerequisite:** Student that successfully completed Geometry 1, Geometry, or Geometry Accelerated.

Open to 11th or 12th graders who are NOT intending to go for the advanced regents diploma. This course will include higher-level algebraic skills, the theory of functions,

financial applications, and trigonometry. There will be a local final at the completion of the course. A TI-84+ calculator is highly recommended.

### GEOMETRY 1

**(1 CREDIT)**

**Prerequisite:** Successful completion of either Algebra or Alg1B/Geo1.

Open to 10th, 11th, or 12th graders who are NOT intending to go for the advanced Regents diploma, who scored below a 75 on the Algebra Regents, or who still need to pass the Algebra Regents. Students will study the relationships of geometric shapes, 3-dimensional figures, angles, lines, develop the process of writing proofs, and apply geometric concepts to real-life situations. There will be a local final at the completion of the course. A TI-84+ calculator is highly recommended.

### GEOMETRY

**(1 CREDIT)**

**Students enrolling in this course MUST have passed the Algebra Regents with a 70 or higher.**

The fundamental purpose of the course in Geometry is to formalize and extend students' geometric experiences from the middle grades. Students explore more complex geometric situations and deepen their explanations of geometric relationships, moving towards formal mathematical arguments. Students will study the

relationships of geometric shapes, 3-dimensional figures, angles, lines, and develop the process of writing formal proofs. This is an advanced Regents math course designed to prepare the students to pass the Geometry Regents at the end of the year in June. A TI-84+ calculator is highly recommended.

### GEOMETRY ACCELERATED

**(1 CREDIT)**

**Pre-requisite:** 9th grade students who have successfully completed Algebra as an 8th grader with a 75 or higher.

This course covers all the material of the Geometry course with a deeper focus on rigid motion based proofs (transformational geometry) as well as exploring additional topics. Students are expected to maintain a minimum B average for all four marking periods. This is an advanced Regents math course designed to prepare the students to pass the Geometry Regents at the end of the year in June. A TI-84+ calculator is highly recommended.

### ALGEBRA 2

**(1 CREDIT)**

**Pre-requisite:** Student must have passed both the Algebra and Geometry Regents with a 72 or better.

This is a fast-paced Advanced Regents math course designed to prepare students to pass the Algebra 2 Regents in June as well as to provide them with a foundation for future IB coursework. Heavy emphasis is placed on advanced algebra, the theory of functions, trigonometry, and statistics. Practice IAs will be part of the coursework in the preparation for possible enrollment in the IB Mathematics SL, IB Math Studies, or further advanced math courses. Students below the pre-requisite will struggle with the content and pace of this course. A TI-84+ calculator is highly recommended.

### ALGEBRA 2A

**(1 CREDIT)**

**Pre-requisite:** Student must have passed both the Algebra and the Geometry Regents exams.

This course is year 1 of a two year Algebra 2 sequence. Topics include: advanced algebra, the theory of functions, trigonometry, and statistics. A TI-84+ calculator is highly recommended.



**ALGEBRA 2B**

**(1 CREDIT)**

**Prerequisite:** Student successfully completed Trigonometry1 or any student who failed the Alg2Trig Regents.

This course is year 2 of a two year Algebra 2 sequence and is designed for students who have successfully completed Trigonometry1. Students will take the Algebra 2 Regents at the end of the year in June. Topics include: advanced algebra, the theory of functions, trigonometry, and statistics. A TI-84+ calculator is highly recommended.

**STATISTICS 1**

**(1 CREDIT)**

**Pre-requisite:** Successful completion of three math credits.

This course will allow students to explore how numbers and statistics affect their lives. Everyday applications will be emphasized. There will be extensive use of the TI-84+ graphing calculator, Microsoft Office software, and Internet resources.

**UHS STATISTICS**

**(1 CREDIT)  
(ACCREDITED THROUGH SCCC)**

**Pre-requisite:** Student successfully completed Trigonometry1 or a higher level course.

This course will apply statistics to real world situations. Topics include hypothesis testing, probability, descriptive statistics, and sampling strategies. There will be extensive use of the TI-84+

graphing calculator, Microsoft Office software, and Internet resources.

**PRE-CALCULUS**

**(1 CREDIT)**

**Prerequisite:** Student successfully completed Trigonometry, Trigonometry 2, or IB Math Studies.

This course is designed to give students practice with pre-calculus concepts and prepare them for a calculus course. Topics include advanced theory of functions with an emphasis on graphing techniques, algebraic theory, limits, and an introduction to differential calculus. A graphing calculator (TI-84+) is needed.

**UHS CALCULUS**

**(1 CREDIT)  
(ACCREDITED THROUGH SCCC)**

**Prerequisite:** Student successfully completed either Pre-Calculus or IB Mathematics SL

This course is intended to introduce students to those topics typically found in Calculus I at the college level. Functions, limits, derivation, and integration will be the focus of the curriculum. A school-level midterm and final exam will be administered. A graphing calculator (TI-84+) is needed.

**IB MATHEMATICS SL**

**STANDARD LEVEL (1 CREDIT)**

**Prerequisite:** Student successfully completed Trigonometry or Trig2 and passing the Alg2Trig Regents with a score of 75 or better.

Mathematical Methods IB is designed to provide students with both a background of theoretical mathematical thought as well as applied problem solving skills. The target audience is students who wish to pursue mathematics, the natural sciences, computer science or engineering in college. Course topics include advanced algebra, functional analysis, circular functions and trigonometry, vectors, probability and statistics, and differential and integral calculus. Students will take the IB Mathematics SL exam in May and a school-level final exam in June. There is one portfolio assessment, a mathematical investigation, that is to be completed before April. Successful completion of this course will result in students being well-prepared for UHS Calculus. A graphing calculator (TI-84+) is needed.

**MATHEMATICAL STUDIES IB**

**STANDARD LEVEL (1 CREDIT)**

**Prerequisite:** Student successfully completed College Bound Math, Trigonometry, Trigonometry1 or Trigonometry2. Trigonometry, or College Bound Mathematics. Attendance rate of 85% or better and must fit the IB Learner Profile with the motivation and desire to learn.

MSSL is designed for students with

varied mathematical backgrounds and abilities. It offers students opportunities to learn important concepts and techniques and to gain an understanding of a wide variety of mathematical topics. These include: linear, quadratic and exponential functions; approximation and error; algorithms; probability and statistics; sets and logic; simple sequences and finance; and trigonometry. It prepares students to be able to solve problems in a variety of settings, to develop more sophisticated mathematical reasoning and to enhance their critical thinking. The individual project is an extended piece of work based on personal research involving the collection, analysis and evaluation of data. This project is to be completed before April and the student will take the IB MSSL exam in May with a school-level assessment in June. Students taking this course are well prepared for a career in social sciences, humanities, languages or arts. These students may need to utilize the statistics and logical reasoning that they have learned as part of the mathematical studies SL course in their future studies.

Before entering the course, students should have a good understanding of basic arithmetic, algebra, geometry and trigonometry. A graphing calculator (TI-84+) is needed.