Math Requirements

Regents Diploma

3 units of math plus a grade of 65% on at least one mathematics examination (usually Algebra I).

Advanced Regents Diploma

3 units of credit and a grade of at least 65% on the Algebra I, Geometry, and Algebra II examinations

Possible pathways are as follows:
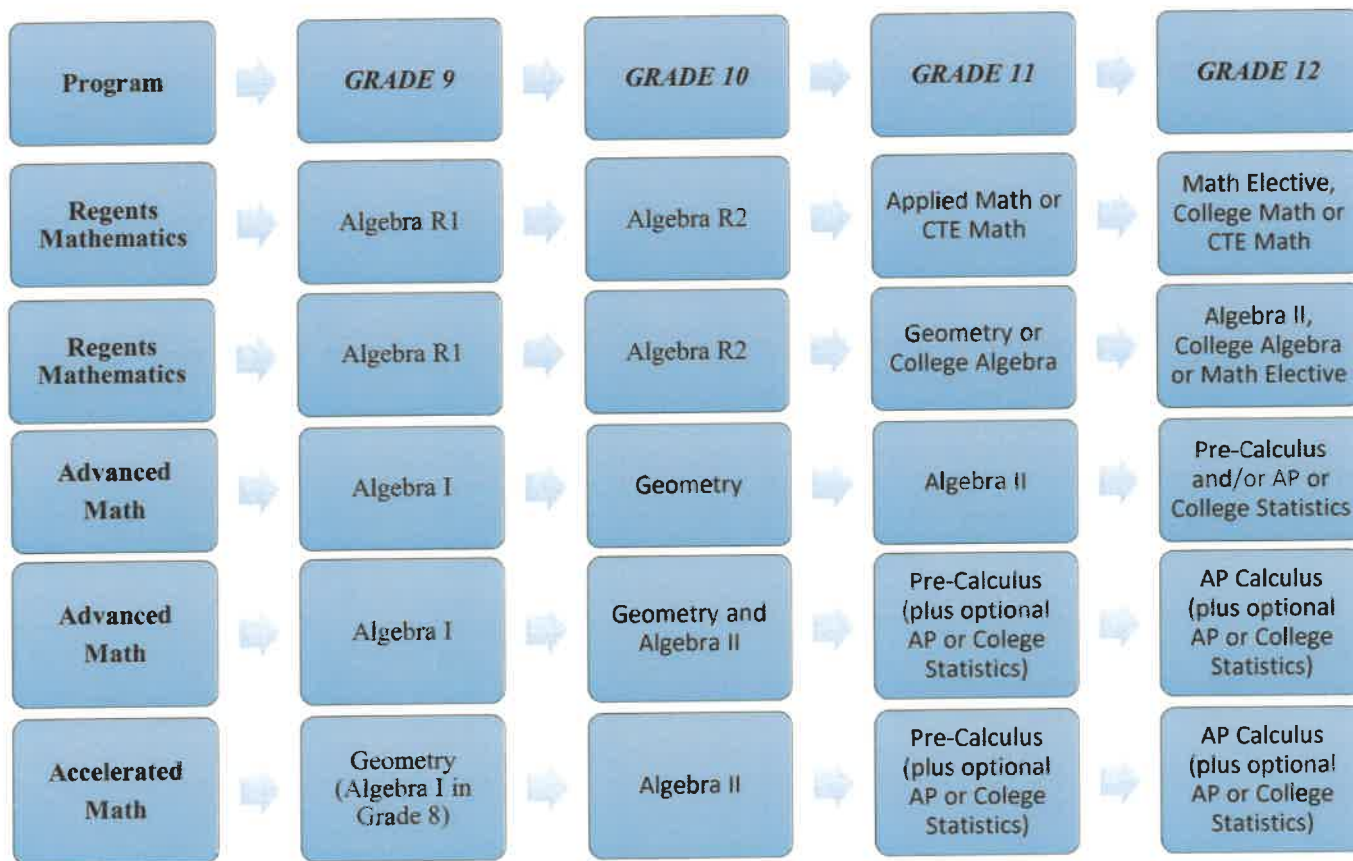- Algebra 1
- Geometry
- Algebra II

OR
- Algebra R1
- Algebra R2
- Geometry
- Algebra II

Typical Mathematics Progressions

Note:
These are typical progressions in mathematics used at WAJ; however, students may customize progressions to their desired Program of Study-pending administrative approval.

Program	GRADE 9	GRADE 10	GRADE 11	GRADE 12
Regents Mathematics	Algebra R1	Algebra R2	Applied Math or CTE Math	Math Elective, College Math or CTE Math
Regents Mathematics	Algebra R1	Algebra R2	Geometry or College Algebra	Algebra II, College Algebra or Math Elective
Advanced Math	Algebra I	Geometry	Algebra II	Pre-Calculus and/or AP or College Statistics
Advanced Math	Algebra I	Geometry and Algebra II	Pre-Calculus (plus optional AP or Colege Statistics)	AP Calculus (plus optional AP or College Statistics)
Accelerated Math	Geometry (Algebra I in Grade 8)	Algebra II	Pre-Calculus (plus optional AP or Colege Statistics)	AP Calculus (plus optional AP or College Statistics)

Algebra I
Credit: 1
Weighting: 0 (1 for accelerated students)

Course Description
This course is the first course in a three year Regents math sequence. Topics include the real number system, solving equations and inequalities, linear equations and inequalities, systems of linear equations and inequalities, linear functions, quadratic functions, polynomial functions, exponential functions and basic statistics. The Algebra I Regents exam is given in June and students MUST pass it to earn a Regents diploma. Note: Algebra I may *NOT* be taken simultaneously with Geometry.

Algebra I is the first mathematics course in high school and the focal point is functions; specifically linear, quadratic, and exponential functions. It introduces students to variables, algebraic expressions, equations, inequalities, functions, and all their multiple representations. This class will cover all topics stated in the NYS Algebra 1 curriculum; it culminates in the Algebra 1 Regents Exam in June. Success in this course must be encouraged and emphasized since passing both the Algebra 1 course and regents are part of the New York State graduation requirement!

Course Requirements
Teacher recommendation (A TI-Nspire Graphing calculator will be provided)

Algebra RI
Credit: 1
Weighting: 0

Course Description
This is the first year of a two year Regents Algebra course and will provide one math credit. Students will take the Algebra I Regents exam during the second year course (10th grade, R2). Topics include solving equations and inequalities, linear equations and inequalities, systems of linear equations, and inequalities, linear functions, quadratic functions, polynomial functions and basic statistics. Some topics will be covered in totality during this course, while others will only be partially covered as a foundation for R2.

This course is a study of the first half of Algebra 1 designed to develop the algebraic concepts and processes that can be used to solve a variety of real-world mathematics problems. Next year, the students will take Algebra 2 to complete their study of Algebra. (You will take the NYS Algebra Regents in January of next year) Upon passing this course, you will have earned your 1st HS math credit. (You need at least 3)

Course Requirements
Teacher recommendation (A TI-Nspire Graphing calculator will be provided)

Algebra R2
Credit: 1
Weighting: 0

Course Description
This is the second year of a two year Regents algebra course. Students will review R1 material and cover remaining standards set forth by NYS. The Algebra I Regents exam is given in January and again in June, if necessary, and students MUST pass it to earn a Regents diploma.

This course is the second year of Algebra 1. We will elaborate on some of the topics we covered last year, and introduce some new ones. You will take the NYS Algebra Regents in January. Upon successful completion of R1 and R2 you will have earned 2 of your 3 math credits needed to graduate. When you pass the Algebra 1 Regents, you will have earned your 1 required Math Regents.
Course Requirements
Teacher recommendation (A TI-Nspire Graphing calculator will be provided)

Algebra II

Credit: 1
Weighting: 0 (2 if taken as an optional "Upper Level Academic", 4th year math course)

Course Description
This course is the third course in a three year math sequence designed for students entering a four-year university. Strong emphasis will be placed on algebraic manipulation of equations. Topics include Polynomial, Rational, and Radical Relationships, Trigonometric Functions, Functions, and Inferences and Conclusions from Data. The Common Core Algebra II /Trigonometry Regents exam is given in June, which students must pass to receive an Advanced Regents Diploma. Algebra 2 may be taken simultaneously with Geometry R pending math department approval. Students taking both courses must have earned a 90 every quarter of Integrated Algebra and passed the Integrated Algebra Regents with a minimum of 85. Algebra 2 may NOT be taken simultaneously with Pre-Calculus.

Course Requirements
Prerequisite: satisfactory completion of Geometry.

AP Calculus AB

Credit: 1
Weighting: 5

Course Description
AP Calculus AB focuses on students' understanding of calculus concepts and provides experience with methods and applications. Through the use of big ideas of calculus (e.g., modeling change, approximation and limits, and analysis of functions), each course becomes a cohesive whole, rather than a collection of unrelated topics. Calculus AB students use definitions and theorems to build arguments and justify conclusions. The courses feature a multi-representational approach to calculus, with concepts, results, and problems expressed graphically, numerically, analytically, and verbally. Exploring connections among these representations builds understanding of how calculus applies limits to develop important ideas, definitions, formulas, and theorems. A sustained emphasis on clear communication of methods, reasoning, justifications, and conclusions is essential. Teachers and students should regularly use technology to reinforce relationships among functions, to confirm written work, to implement experimentation, and to assist in interpreting results.

Course Requirements
Prerequisite: successful completion of Pre-Calculus.

AP Computer Science Principles

Credit: 1
Weighting: 5

Course Description
Computer Science Principles (CSP) is a PLTW course to implement the College Board's new AP CS Principles framework. Students work in teams to develop computational thinking and solve problems. The course does not aim to teach mastery of a single programming language but aims instead to develop computational thinking, to generate excitement about the field of computing, and to introduce computational tools that foster creativity. The course also aims to build students' awareness of the tremendous demand for computer specialists and for professionals in all fields who have computational skills. Each unit focuses on one or more computationally intensive career paths. The course also aims to engage students to consider issues raised by the present and future societal impact of computing.

Course Requirements
Prerequisite: *None*

AP Statistics
Credit: 1
Weighting: 5

Course Description
The AP Statistics course introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. There are four themes evident in the content, skills, and assessment in the AP Statistics course: exploring data, sampling and experimentation, probability and simulation, and statistical inference. Students use technology, investigations, problem solving, and writing as they build conceptual understanding. The AP Statistics course is equivalent to a one-semester, introductory, non-calculus-based college course in statistics.

Course Requirements
Prerequisites: The AP Statistics course is an excellent option for any secondary school student who has successfully completed a second-year course in algebra and who possesses sufficient mathematical maturity and quantitative reasoning ability

Applied Math
Credit: 1
Weighting: 0

Course Description
This is the third course in a three year math sequence and will provide one math credit. This class will introduce students to everyday math concepts including creating a budget, interest calculations (mortgage payments, car payments, student loans, savings and investments) calculating income tax, business modeling, scheduling problems, using algorithms, and other real world math situations. Algebra R or

Course Requirements
Prerequisites: Algebra I or Algebra R1 and R2.

Applied Math Robotics I
Credit: .5
Weighting: 0

Course Description
It is crucial for students to develop algebraic thinking and engineering design skills as we prepare to compete in the global economy. Algebraic thinking involves identifying patterns, relationships, and functions between one or more objects and being able to find the interrelationships between the variables that make up the objects; it is the beginning of symbolic reasoning. Engineering design skills provide students with a systematized methodology for solving complex problems; it is rigorous creativity. The Robot Algebra Project uses classroom friendly technologies to develop students' algebraic thinking and reasoning skills by placing them in technology-rich problem solving situations where they must find the mathematical rule of principle to unlock the solution to the problem and then apply that rule across multiple contexts.

Course Requirements
Prerequisite: Student must be enrolled in Robotics Engineering I (.5 credit) at the same time as this course; instructor approval needed. One-half semester credit will be given for *each* course: Applied Mathematics Robotics I and Robotic Engineering I.) (Limit 10 students)

Applied Math Robotics II

Credit: .5
Weighting: 0

Course Description
It is crucial for students to develop algebraic thinking and engineering design skills as we prepare to compete in the global economy. Algebraic thinking involves identifying patterns, relationships, and functions between one or more objects and being able to find the interrelationships between the variables that make up the objects; it is the beginning of symbolic reasoning. Engineering design skills provide students with a systematized methodology for solving complex problems; it is rigorous creativity. The Robot Algebra Project uses classroom friendly technologies to develop students' algebraic thinking and reasoning skills by placing them in technology-rich problem solving situations where they must find the mathematical rule of principle to unlock the solution to the problem and then apply that rule across multiple contexts.

Course Requirements
Successful completion of Applied Math Robotics I **and** Robotic Engineering I is a prerequisite for this second-level course.   Instructor approval is also required.

Applied Math Robotics III

Credit: .5
Weighting: 0

Course Description
It is crucial for students to develop algebraic thinking and engineering design skills as we prepare to compete in the global economy. Algebraic thinking involves identifying patterns, relationships, and functions between one or more objects and being able to find the interrelationships between the variables that make up the objects; it is the beginning of symbolic reasoning. Engineering design skills provide students with a systematized methodology for solving complex problems; it is rigorous creativity. The Robot Algebra Project uses classroom friendly technologies to develop students' algebraic thinking and reasoning skills by placing them in technology-rich problem solving situations where they must find the mathematical rule of principle to unlock the solution to the problem and then apply that rule across multiple contexts.

Course Requirements
Successful completion of Applied Math Robotics II and/or Robotic Engineering II is a prerequisite for this third-level course.   Instructor approval is also required.

College Algebra

Credit: 1 (3 college credits)
Weighting: 4

Course Description
This is a reform math course. Students will work in collaborative groups on activities in which the mathematics arises from context. Real life data is interpreted numerically, symbolically and graphically. Topics include: linear, quadratic, rational and exponential functions.

This course is for college students who have successfully completed elementary algebra or the equivalent. This is a reform math course. Real life data is interpreted numerically, symbolically and graphically. Topics include: linear, quadratic, rational and exponential functions. NOTE: The TI-83/84 Plus calculator is required. (4 semester hours) This course cannot be taken as a pre-requisite for Pre-calculus. This course fulfills the SUNY General Education requirements for Mathematics (and Quantitative Reasoning).

Course Requirements
Prerequisite: successful completion of Algebra I or Algebra R1, A TI Nspire calculator will be supplied.

College Statistics 102

Credit: .5 (3 college credits)
Weighting: 4

Course Description

This course introduces students to the basics of descriptive and inferential statistics. The topics covered include data analysis, measures of central tendency and measures of dispersion, correlation and regression, probability and probability distributions, and confidence intervals and hypothesis testing. This course fulfills the SUNY General Education requirement for Mathematics.

Course Requirements

Prerequisite: enrolled in Algebra II or successful completion of Algebra II, 80% GPA in math content area.

Computer Applications 105

Credit: .5 (3 college credits)
Weighting: 4

Course Description

This course examines how to use computers to solve problems, write reports, and summarize data. Simple word processing, spreadsheets, database management, and presentation software will be learned using Microsoft Office. Programming a computer will not be studied.

Course Requirements

Prerequisite: 80% GPA

Geometry

Credit: 1
Weighting: 0

Course Description

This course is the second course in a three year math sequence designed for students entering a four-year university. Primary focus throughout this course will be on geometric reasoning to develop theorems to write proofs using congruence statements. Students will model theorems using constructions and patty paper labs. Topics include basic constructions, coordinate geometry, locus, transformations, logic used to prove theorems, parallel and perpendicular lines, congruent triangles, quadrilaterals, similarity, right triangle trigonometry, circles, and modeling applications using surface area and volume. The (Common Core) Geometry Regents exam is given in June, which students must pass to receive an Advanced Regents Diploma. Geometry may be taken simultaneously with Algebra 2 pending math department approval. Students taking both courses must have earned a 90 every quarter of Algebra I and passed the Algebra I Regents with a minimum of 85.

Course Requirements

Prerequisite: Satisfactory completion of Algebra I or Algebra R1 AND R2.

Precalculus (MA 111)

Credit: 1 (3 college credits)
Weighting: 4

Course Description

This is the fourth year of math required by most 4-year colleges. Students are expected to have passed all three math regents courses and exams, Algebra I, Geometry, and Algebra II. Topics covered include (but are not limited to) Functions, Trigonometric Functions, Graphs and Inverse of Trigonometric Functions, Applications of Trigonometry, Trigonometric Identities and Equations, Polynomial Functions, Exponential and Logarithmic Functions, and Matrices and Vectors. An emphasis to prepare students to take the AP Calculus course as a senior in high school or as a freshman in college is present in this course.

Course Requirements

Prerequisite: Satisfactory completion of Algebra II, a 65% or higher on the Algebra II Regents exam, and recommendation of the instructor; 80% GPA in math content area