

MATHEMATICS DEPARTMENT

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MATHEMATICS at a Glance

Course	Grade	Credit
Pre-algebra	9, 10	1
Integrated Biology with Mathematics	9	2
Algebra Enhanced	All	1
Algebra	All	1
Algebra Honors	All	1
Computer Science I*	9, 10	1
Computer Science II*	9, 10, 11	1
Geometry Enhanced	10, 11, 12	1
Geometry	10, 11, 12	1
Geometry w/Discrete Math Honors	All	1
Algebra II		
Advanced Algebra & Trigonometry	11, 12	1
Advanced Algebra & Trig. Honors	9, 10, 11, 12	1
Statistics		
AP Statistics	11, 12	1
Precalculus and Analysis Honors	9, 10, 11, 12	1
Calculus		
AP Calculus AB	12	1
Independent Study	11, 12	0.5 to 1

*These courses are only offered at the Mathematics and Science Academy.

MATHEMATICS Courses

Prealgebra

M143 Grades 9, 10
M168 (BIL) 1 credit
M139 (M739 Sem. 2) (Category I Grade Weighting)
 Prerequisite: Dept. recommendation
 Year course

This course is intended for students who have mastered essential arithmetic skills, but who still need to develop skills in topics necessary for success in algebra. Students explore and develop skills in recognizing patterns, using formulas, estimating, measuring, analyzing data, identifying geometric shapes and their properties, and computing with signed numbers. Additionally, students are introduced to the language and techniques of algebra.

Algebra Enhanced

M118 Grades 9, 10, 11, 12
M244 1 credit
M123 (Category I Grade Weighting)
 Prerequisite: Dept. recommendation
 Year course

This course covers the same topics outlined for Algebra but addresses the visual and kinesthetic learning styles. Applications to careers and real life are emphasized. Manipulatives and mathematical models are used to help students "see" algebraic concepts.

Algebra

M018 Grades 9, 10, 11, 12
M144 1 credit
M170 (BIL)
M138 (Category I Grade Weighting)
 Prerequisite: Dept. recommendation
 Year course

This course serves as a basis for all college preparatory courses that follow and for college courses within the fields of agriculture, architecture, business, engineering, law, life sciences, medicine, physical sciences, and several social sciences. Algebra is a course designed for the math student to think in both concrete and abstract terms. Students should be proficient in the use of basic properties and definitions. Students will become competent in problem solving techniques and will be able to translate English into the language of mathematics and the reverse.

Algebra Honors

Grade 9 only
M145
PM10X 1 credit
PM10Y
 Prerequisite: Dept. recommendation
 Year course

This course covers the same topics outlined for Algebra but in greater depth and breadth. It is for students with above average ability and genuine interest in mathematics. It uses an in-depth study approach and makes it possible for students to prepare for and complete Calculus while in high school.

Computer Science I

PM20X Grades 9, 10, 11, 12
PM20Y
 Prerequisite: none 1 credit
 Year course

This course introduces students to programming methodology, algorithms, and data structures using advanced programming languages. Emphasis is placed on the application of programming techniques to solve problems. Object-oriented and structured approaches are applied.

MATHEMATICS

Computer Science II

PM21X Grades 9, 10, 11, 12

PM21Y

Prerequisite: Dept. recommendation 1 credit

Year course

This course focuses on the development of programming techniques necessary to solve more complex problems. Using data files, high-resolution graphics, and shape tables, students use a modular approach to the development of programs.

Geometry Enhanced

M246 Grades 10, 11, 12

Prerequisite: Sophomore standing or Dept. recommendation 1 credit

Year course

This course covers the same topics outlined for Geometry but addresses the visual and kinesthetic learning styles. Applications to careers and real life are emphasized. Manipulative activities and mathematical models are used to help students "see" geometric properties and concepts.

Geometry

M146 Grades 10, 11, 12

M175 (BIL) 1 credit

M124 (Category I Grade Weighting)

Prerequisite: Sophomore standing or Dept. recommendation

Year course

This course develops those skills necessary to analyze, categorize, and draw conclusions about points, lines, angles, planes, and space. Properties of figures are examined, developed, and applied to solve a variety of problems. Congruency and similarity of figures are investigated and applied. Direct and indirect measurement techniques are used to determine angle measure, perimeter, area, and volume of figures. Algebraic techniques are used to symbolically represent and solve geometric problems in a wide variety of settings. Deductive reasoning skills are developed through work with formal and informal proofs.

Geometry with Discrete Math Honors

M147 Grades 9 & 10 only

PM11X 1 credit

PM11Y

Prerequisite: Algebra Honors or

Dept. recommendation

Year course

This course covers all of the same topics outlined for Geometry but in greater depth and breadth. Additional geometric concepts are covered as well. Student projects and in-depth investigations of special topics will be assigned. It is for students with above average ability and genuine interest in mathematics. This course helps provide the foundation necessary for success in Advanced Placement classes.

Advanced Algebra and Trigonometry

M148 Grades 11, 12

Prerequisite: Geometry 1 credit

Year course

This course continues and expands on topics introduced in Algebra I. Students develop in-depth understanding of

graphing techniques, systems, and the complex number system. Linear, quadratic, polynomial, rational, exponential, logarithmic, and trigonometric functions are explored using traditional as well as modern technology. Successful completion of this course is generally expected for admittance to most four-year colleges.

Statistics

PM31X GRADE 11, 12

PM31Y CREDIT 1

Prerequisite:

This course provides a foundation of statistical analysis, probability, data analysis, statistical inference, distributions, statistical tests and the principles of regression are topics of study. Particular emphasis is given to applications of these tools and techniques in the areas of science, medicine, business, and the social sciences.

AP Statistics

M155 Grades 11, 12

Prerequisite: Advanced Algebra and Trig. 1 credit

Year course

This course is intended for the student interested in earning college credit through Advanced Placement testing. Students are exposed to four broad conceptual themes: exploring data, planning a study, anticipating patterns and statistical inference. All students are strongly encouraged to take the Advanced Placement examination in statistics.

Precalculus and Analysis Honors

PM13X Grades 11, 12

PM13Y 1 credit

Prerequisite: Advanced Algebra and Trig.

Year course

This course is intended for the college-bound student who is preparing for Calculus. Instruction emphasizes the study of applications of mathematics with enhanced use of graphics calculators. This course offers an in-depth study of the following topics: functions and graphs, functions and their zeros, polynomial functions, exponential and logarithmic functions, applications of trigonometry, parametric equations and polar coordinates, matrices and systems of equations and inequalities, sequences and series, and probability and statistics.

Calculus

PM30X Grades 10, 11, 12

PM30Y 1 credit

Prerequisite: Precalculus

Year course

This course develops concepts related to differential and integral calculus. Both have mathematical and physical importance, and as such, particular emphasis is placed on both theory and application using an inquiry-based approach.

AP Calculus AB

M153 Grade 11 & 12

Prerequisite: Adv. Algebra & Trig. Honors or 1 credit

Precalculus Honors or Dept. recommendation

Year course

This course is intended for the mature student interested in earning college credit. Students investigate differential and integral calculus with algebraic and transcendental functions.

Special emphasis is given to techniques of integration and application to maxima and minima, related rate, curve sketching, area and volume problems. Analytic geometry is also studied with emphasis on conic sections and determination of the equations of curves. Students interested in pursuing careers in engineering, medicine, and the sciences should consider this course necessary for these careers.

Students who want to enroll for college credit must meet the Triton placement criteria of an ACT MATH score of 24 or above or score 8 on the Triton Math Placement Exam. Students who enroll for college credit must successfully complete this course with a final grade of C or better each

semester to receive credit in Math 131 at TRITON COLLEGE. All students are strongly encouraged to take the Advanced Placement examination in Calculus.

**Independent Study in Mathematics
M501**

Grades 11, 12
0.5 to 1 credit

Prerequisite: Departmental approval
One or two semester course

Independent study must be appropriately designed and approved. The course will cover the knowledge and skills identified by the student working in cooperation with the selected faculty member. See Independent Study under the Alternative School Center and Innovative Programs, p.16-17.

Programming Courses Diagram

Strong math students wanting to pursue a math related career (e.g. engineering)	Strong math students wanting to pursue a non-math related career (4-year university)	Students who may want to pursue further education (2 or 4-year college)	Students who are not strong in math and may or may not pursue further education
Algebra Honors	Algebra	Algebra Enhanced Prep Academy 2 year math	Pre algebra
↓ Geometry Honors	↓ Geometry	↓ Geometry Enhanced	↓ Algebra Enhanced
↓ Advanced Algebra & Trigonometry Honors	↓ Advanced Algebra & Trigonometry	↓ Advanced Algebra	↓ Geometry Enhanced Algebra 2
↓ AP Calculus and/or	↓ Precalculus Honors (A,B)	↓ Statistics	↓ Statistics
↓ AP Statistics	Statistics		

