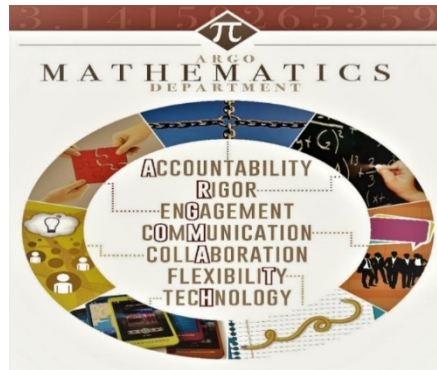


Mathematics

The mission of the Argo Community High School Mathematics Department is to provide a **rigorous and engaging** educational experience in mathematics that enable students to reason, **communicate**, and think critically to become competent problem solvers in a **technologically** changing world. Both teachers and students will be **accountable** for creating a **collaborative** learning environment that maximizes student achievement. This will be accomplished through our commitment to excellent teaching, a well-designed curriculum, and a positive, supportive yet **flexible** environment for all students of ACHS.



Suggested Mathematics Sequence

Level	Grade 9	Grade 10	Grade 11	Grade 12
College Prep	Intro to Algebra & Geometry	Algebra I	Geometry *Geometry in Construction	Algebra II
College Prep	Algebra I	Geometry *Geometry in Construction	Algebra II	Advanced Math Concept (dual credit) AP Statistics AP Computer Science A College Algebra (dual credit) Smart Money
Accelerated	Honors Algebra I	Honors Geometry 10	AP Computer Science A Honors Advanced Algebra AP Statistics	AP Calculus *AP Calculus BC AP Statistics AP Computer Science A
Honors	Honors Geometry	Honors Algebra II	AP Computer Science A Honors Pre-Calculus AP Statistics	AP Calculus AB **AP Calculus BC AP Statistics AP Computer Science A

*New course for 2020 - 2021 school year (pending Board of Education approval)

Course Descriptions:

MA630 – ADVANCED MATH CONCEPTS

Year: 11, 12

Credit: 1

This course will lay the groundwork for further study of mathematics at the college level. All standard precalculus topics are presented, as well as substantial new material. Students will study topics in relations, functions, graphs, trigonometry, advanced functions and graphing, and discrete mathematics.

Completion of this course with a grade of A, B, or C will qualify the student for dual credit at MVCC (MTH 141

College Algebra: 4 credit hours **AND** MTH 142

Trigonometry Functions: 2 credit hours)

A TI-Nspire or similar graphing calculator is strongly encouraged for this course.

Prerequisite: A or B in Algebra II or recommendation of teacher with Department Chair approval.

MA320 – ALGEBRA I

Year: 9, 10, 11, 12

Credit: 1

This course covers operations, properties, and patterns in algebra. It covers topics of linear equations and inequalities, systems of equations, polynomial factoring, quadratics, absolute value, exponential functions, radicals and elementary statistics. Successful completion of this course will build a solid foundation for future mathematics courses at ACHS. **A TI-Nspire or similar graphing calculator is strongly encouraged for this course. Prerequisite: 8th grade mathematics or successful completion of pathways during summer school with Department Chair approval.**

MA620 – ALGEBRA II

Year: 10, 11, 12

Credit: 1

This intermediate algebra course is a continuation of Algebra I, including the solutions of equations, inequalities, and systems. An emphasis is placed upon understanding relations and functions, including quadratic functions, exponential functions, logarithmic function, rational functions, and polynomial functions.

The unit circle, probability and statistics, series and sequences, and the complex number system are introduced.

A TI-Nspire or similar graphing calculator is strongly encouraged for this course.

Prerequisite: Successful completion of both Algebra I and Geometry and recommendation of teacher with Department Chair approval.

MA990 - AP CALCULUS

Year: 11, 12

Credit: 1

This course provides the equivalent of one semester of college calculus. Topics studied include limits, continuity, derivatives and their applications, slope fields, and integrals and their applications. Students enrolled in this course are required to take the Advanced Placement examination in AB Calculus.

Based on this examination, the student's college will determine how much advanced placement and/or credit in college mathematics the student will receive.

A TI-Nspire or similar graphing calculator is strongly encouraged for this course.

Prerequisite: C+ or higher in Honors Pre-Calculus and recommendation of teacher with Department Chair approval.

MA970 – AP COMPUTER SCIENCE A

Year: 2, 3, 4

Credit: 1

This course introduces students to computer science with fundamental topics that include problem solving, design strategies and methodologies, organization of data, approaches to processing data (algorithms), analysis of potential solutions, and the ethical and social implications of computing. The course emphasizes both object-oriented and imperative problem solving and design using the Java Language. This course follows the College Board's Advanced Placement curriculum and as such is extremely rigorous and fast-paced.

Prerequisite: Successful completion of at least Algebra II or Honors Algebra II along with teacher and Department Chair approval.

MA980 – AP STATISTICS

Year: 10,11,12

Credit: 1

This course provides college-level work in statistics, data analysis, and probability. The course is built around four broad conceptual themes:

1) Exploring Data: observing patterns, and departures from patterns; 2) Planning a Study: deciding what and how to measure; 3) Anticipating Patterns in Advance: introducing probability and simulation; and 4) Statistical Inference: confirming models. Students enrolled in this course are required to take the Advanced Placement examination in Statistics. Based on the student's performance on this examination, the student's college will determine how much advanced placement and/or credit in college statistics the student will receive.

Juniors: Successful completion of Algebra II or higher with Department Chair approval. Students must take concurrently with MA630 Advanced Math Concepts, MA940 Honors Pre-Calculus, or MA990 AP Calculus.

Seniors: Successful completion of Algebra II or higher with Department Chair approval.

MA610 – COLLEGE ALGEBRA

Year: 12

Credit: 1

This 4th year math course is a functional approach to algebra that incorporates the use of appropriate technology. Topics covered include linear and quadratic equations, systems of equations, matrices and determinants, functions (linear, quadratic, piecewise, inverse, exponential, logarithmic, polynomial, and rations), powers, roots, radicals, quadratic relations, trigonometric rations and functions, and trigonometric graphs, identities, and equations. Appropriate applications will be included. A TI-Nspire or similar graphing calculator is strongly encouraged.

Completion of this course with a grade of A, B, or C will qualify the student for dual credit at MVCC (MTH 141 College Algebra: 4 credit hours)

Prerequisite: Successful completion of three years of high school mathematics through Algebra II with a grade of A, B, or C and recommendation of teacher with Department Chair approval.

MA340 – DUAL LANGUAGE PLANE GEOMETRY

Year: 10, 11

Credit: 1

The basic content of this course is plane geometry with integration of transformations and coordinate geometry. This course develops geometric concepts, including the study of formal proofs (including coordinate and indirect methods) and algebraic applications. Algebra is used extensively for areas, volumes, lengths, angle measures, and graphing.

The primary language of instruction will be in Spanish.

A TI-Nspire or similar graphing calculator is strongly encouraged for this course.

Prerequisite: Successful completion of Algebra I and teacher recommendation with Department Chair approval.

MA350 – GEOMETRY IN CONSTRUCTION

Year: 10, 11

Credit: 2

Geometry in Construction is an integrated geometry in construction course. The common core aligned geometry curriculum is taught in the context of construction. The course is team taught by a math teacher and a technology teacher. The concepts within the course are organized to complement the skills and the knowledge needed in the building process starting with foundational concepts. The students in this course will have math days as well as build days. On the build days, the students will be working together to build a shed, tiny house, or a much larger project. This course will provide students the opportunity to immediately apply what they are learning in the classroom to what they are doing on the build site. Students will receive two credits for this year long, blocked course; one elective credit, one math credit. **Prerequisite: Algebra I with teacher recommendation and Department Chair approval.**

MA950 – HONORS ADVANCED ALGEBRA

Year: 10, 11

Credit: 1

This accelerated honors course parallels the same outcomes as Algebra II and Honors Pre-Calculus. Successful completion of this course will prepare students for the study of Advanced Placement Calculus the following year. 1st semester topics covered include linear and quadratic equations, systems of equations, functions (linear, quadratic, inverse, exponential, logarithmic, polynomial, and rational), powers, roots, radicals, quadratic relations. 2nd semester topics covered include functions (polynomial, rational, exponential, logarithmic, and inverse), systems of equations and inequalities, sequences and probability.

Prerequisite: Honors Geometry X or recommendation of teacher with Department Chair approval.

MA910 – HONORS ALGEBRA I

Year: 9

Credit: 1

This accelerated honors course parallels the same outcomes as Algebra I. Mastery of these outcomes is expected. **A TI-Nspire or similar graphing calculator is strongly encouraged for this course.**

Prerequisite: 8th grade mathematics or successful completion of pathways during summer school with Department Chair approval.

MA920 - HONORS ALGEBRA II

Year: 9, 10, 11

Credit: 1

This accelerated honors course parallels the same outcomes as Algebra II. Mastery of these outcomes is expected. **A TI-Nspire or similar graphing calculator is strongly encouraged for this course.**

Prerequisite: Honors Geometry or recommendation of teacher with Department Chair approval.

MA930 – HONORS GEOMETRY X

Year: 9, 10

Credit: 1

This accelerated honors course parallels the same outcomes as Plane Geometry and Trigonometry. First semester will emphasize Honors Geometry while the second semester will focus on Trigonometry. Topics in this course include right triangle trigonometry, trigonometric functions and their inverses, graphs, identities, equations, solutions of oblique triangles, complex numbers, and analytic geometry.

A TI-Nspire or similar graphing calculator is strongly encouraged for this course.

Prerequisite: Honor Algebra I with teacher recommendation and Department Chair approval.

MA915 – HONORS PLANE GEOMETRY

Year: 9, 10

Credit: 1

This accelerated honors course parallels the same outcomes as Algebra I and Plane Geometry. First semester will emphasize Algebra while infusing Geometry. Second semester will focus on Plan Geometry while incorporating Algebraic concepts where appropriate.

A TI-Nspire or similar graphing calculator is strongly encouraged for this course.

Prerequisite: 8th grade Algebra I class and recommendation of 8th grade teacher.

MA940 – HONORS PRE-CALCULUS

Year: 10, 11, 12

Credit: 1

This course covers systems of equations, graphing, rational and polynomial functions, trigonometry, exponential and logarithmic functions and conics. Additional topics include limits, parametric equations, polar equations, statistics, and mathematical induction. Topics will be studied in great depth in preparation for AP Calculus.

A TI-Nspire or similar graphing calculator is strongly encouraged for this course. Prerequisite: C+ or higher in Honors Algebra II and recommendation of teacher with Department Chair approval.

MA100 – INTRODUCTION TO ALGEBRA AND GEOMETRY

Year: 9, 10, 11, 12

Credit: 1

This course is geared to introduce students to high school level mathematics. It will establish math study and organizational skills as well as the reinforcement of basic math skills. The course will introduce Pre-Algebra and Pre-Geometry concepts throughout the year. Students will explore arithmetic operations, number systems and properties, both solving and graphing linear and non-linear equations, measurement, geometry, and an introduction to algebraic thinking and applications.

A Scientific calculator is required for this course.

MA999 - MATH INDEPENDENT STUDY

Year: 11, 12

Credit: 1

This course introduces students to independent research or course of study. Specialized topics from a concentrated field of current interest will be presented at an advanced level under the direction of the Math Department Chair.

MA330 – PLANE GEOMETRY

Year: 10, 11, 12

Credit: 1

The basic content of this course is plane geometry with integration of transformations and coordinate geometry. This course develops geometric concepts, including the study of formal proofs (including coordinate and indirect methods) and algebraic applications. Algebra is used extensively for areas, volumes, lengths, angle measures, and graphing.

A TI-Nspire or similar graphing calculator is strongly encouraged for this course.

Prerequisite: Successful completion of Algebra I and teacher recommendation with Department Chair approval.

MA650 – SMART MONEY: ADVANCED ALGEBRA WITH FINANCIAL APPLICATIONS

Year: 12

Credit: 1

This course will introduce students to mathematics in the real world. The course will apply students' algebra skills developed in their previous years of math to topics like investing, buying a car, applying for a mortgage, paying taxes, and saving for retirement. Financial projects with real life applications will be the theme for each unit.

Prerequisite: Successful completion of three years of high school mathematics through Algebra II and recommendation of teacher with Department Chair approval.