

MATHEMATICS COURSES

Course: MTH009		Math Lab
Grade: 9-12	Semester	Course offered at: AHS CDO
Prerequisites: <i>Teacher recommendation only</i>		
Math Lab is a self-paced personalized program of learning focusing on credit recovery and/or intervention. Computer programs, such as ALEKS and Edgenuity will be utilized to support students in understanding mathematical concepts. Students taking this course will receive one-on-one or small group support.		

Course: MTH002A/MTH002B		Algebra I
Grade: 9-12	All Year	Course offered at: AHS CDO IRHS
Prerequisites: <i>none</i>		
Learning Algebra helps students develop critical thinking skills. Coupled with the 8 Mathematical Practices, students will engage in activities that enable them to discover, understand and apply algebraic concepts. In addition, students will focus on multiple representations of functions and solving problems based on real-world situations. In this course, students will... • See structure in expressions and perform arithmetic operations on polynomials and rational expressions • Create and reason with equations and inequalities and interpret and build functions • Construct and compare linear, quadratic, absolute value, and exponential models • Interpret categorical and quantitative data • Understand independence and conditional probability and use them to interpret data • Participate in differentiated personalized learning through the ALEKS online resource		

Course: MTH012A/MTH012B		Geometry
Grade: 9-12	All Year	Course offered at: AHS CDO IRHS
Prerequisites: <i>Algebra I</i>		
Studying geometry provides many foundational skills and helps students build higher-level thinking skills, such as logic, deductive reasoning, analytical reasoning and problem solving, as well as an understanding of spatial relationships. In this course, students will... • Experiment with transformations in the plane and understand congruence in terms of rigid motions • Understand and prove geometric theorems and make geometric constructions • Define trigonometric ratios and solve problems involving right triangles • Build an understanding of circles and apply theorems, find arc lengths, and determine areas of sectors • Express geometric properties with equations, explain volume formulas and use them to solve problems • Reason quantitatively and explore concepts in probability • Participate in differentiated personalized learning through the ALEKS online resource		

Course: MTHo13A/MTHo13B		Honors Geometry
Grade: 9-12	All Year	Course offered at: CDO IRHS
Prerequisites: <i>Grade of A/B in Algebra I and teacher recommendation. 9th graders must have an "A" in Algebra and a recommendation from an 8th grade teacher</i>		
Honors Geometry focuses on the study of geometrical shapes (planes and solids) and figures based on different postulates and theorems, better known as Euclidean Geometry. Honors Geometry students will engage in higher-level thinking problems and experience real-life applications in greater depth and at a more rigorous pace than Geometry. In this course, students will... • Experiment with transformations in the plane and understand congruence in terms of rigid motions • Prove geometric theorems and make geometric constructions • Define trigonometric ratios and solve problems involving right triangles • Build an understanding of circles and apply theorems, find arc lengths, and determine areas of sectors • Express geometric properties with equations and explain volume formulas and use them to solve problems • Reason quantitatively and explore concepts in probability <i>This course is intended for most college-bound students planning on taking upper-level mathematics classes.</i> This course carries a weighted grade.		

Course: MTHo10A/MTHo10B		Intermediate Algebra
Grade: 11-12	All Year	Course offered at: AHS CDO IRHS
Prerequisites: <i>Credit in Algebra I and Geometry or teacher recommendation</i>		
Intermediate Algebra provides a strong foundation in entry level algebraic applications. Bridging Algebra I and Algebra II, this course supports students' development of critical algebra skills necessary for success in applying mathematical ideas to real-world situations. In this course, students will... • Factor polynomials, and perform operations on rational, radical, and complex number expressions and equations • Solve compound inequalities and absolute value equations • Solve and apply quadratic equations by using factoring, the quadratic formula, and completing the square • Perform operations with functions • Use properties of logarithms to solve logarithmic and exponential equations • Work with concepts involving Statistics and Probability • Participate in differentiated personalized learning through the ALEKS online resource. <i>This course counts as a math requirement for graduation but does not meet the upper-level math requirement for state universities.</i> <i>This course does not meet NCAA Clearinghouse requirements for collegiate student-athletes.</i>		

Course: MTHo4oA/ MTHo4oB		Financial Algebra
Grade: 9-12	All Year	Course offered at: AHS CDO IRHS
Prerequisites: <i>Geometry, Counselor and/or teacher recommendation – this course will satisfy the 4th year state math requirement and will be an Algebra II equivalent</i>		
Enabling students to implement the decision-making skills they must apply and use to become knowledgeable consumers, investors, and money managers is critical as citizens of the 21st century global community. Through this course, students will develop a strong foundation in logical thinking and problem solving, and incorporate concepts, skills, and critical thinking from mathematics, language arts, social studies, and applied technology. In this course, students will make use of the concept embedded in Algebra as they experience/understand the details of... • Modeling a business • Banking services and consumer credit • Automobile ownership • Income taxes • Independent living • Employment basics • Retirement • Budgeting • Financial markets and cryptocurrency		

Course: MTHoo3A/MTHoo3B		Algebra II
Grade: 9-12	All Year	Course offered at: AHS CDO IRHS
Prerequisites: <i>Grade of "C" or better in Algebra I AND Geometry, or credit in Intermediate Algebra, or teacher recommendation</i>		
Learning Algebra helps to develop critical thinking skills, including problem solving, logic, patterns, and reasoning. Learning the skills in Algebra II moves students beyond basic math and prepares them for statistics and calculus. In this course, students will... • Extend the properties of exponents to rational exponents and perform arithmetic operations with complex numbers • Understand the relationship between zeroes and factors of polynomials • Interpret, analyze, and build functions that model the relationship between two quantities and between existing functions • Construct and compare linear, quadratic, and exponential models • Extend trigonometric functions to the unit circle • Interpret categorical and quantitative data • Understand independence and conditional probability and use them to interpret data • Participate in differentiated personalized learning through the ALEKS online resource		

Course: MTH004A/MTH004B		Honors Algebra II
Grade: 9-12	All Year	Course offered at: AHS CDO IRHS
Prerequisites: <i>Grade of A/B in Algebra I AND an A/B in Geometry or teacher recommendation</i>		
Honors Algebra II is a standards-based course extending the concepts learned in Algebra I. Students will experience high level real-world problems to aid in the development of problem-solving skills and critical thinking. This course is rigorous and presented at a faster pace than Algebra II. Successful completion of Honors Algebra II will prepare students for Introduction to Calculus, AP Statistics, and/or College Algebra. In this course, students will... • Extend the properties of exponents to rational exponents • Perform arithmetic operations with complex numbers and use complex numbers in polynomial identities and equations • Understand the relationship between zeroes and factors of polynomials • Interpret, analyze, and build functions that model the relationship between two quantities and between existing functions • Construct and compare linear, quadratic, and exponential models • Extend trigonometric functions to the unit circle • Interpret categorical and quantitative data • Understand independence and conditional probability and use them to interpret data This course carries a weighted grade.		

Course: MTH024A/MTH024B		Statistics
Grade: 11-12	All Year	Course offered at: AHS CDO IRHS
Prerequisites: <i>Algebra II</i>		
Statistical literacy prepares students for a society in which the ability to use and critically evaluate information is central to becoming an informed citizen. The goal of this course is to get students to think about the “why” and “how” of statistics, therefore there is an emphasis on conceptual understanding over computation. This course serves as excellent preparation for a college-level introductory statistics course and can be taken concurrently with other math courses. In this course, students will... • Analyze and model One- and Two-Variable Quantitative Data. • Collect and infer about data samples. • Study probability. • Compare populations. • Study inference for distributions and relationships. • Interact with the digital platform, SaplingPlus, which extends the learning with an interactive eBook, a variety of video supports, and online homework with error-specific feedback. <i>This course satisfies the fourth-year math requirement for admission into most colleges and universities.</i>		

Course: MTHo18A/MTHo18B		AP Statistics
Grade: 11-12	All Year	Course offered at: AHS CDO IRHS
Prerequisites: <i>Grade of "C" or better in Pre-Calculus or Honors Alg. II or "A" in Alg. II</i>		
AP Statistics is an introductory college-level statistics course focusing on the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students develop an understanding of statistics using technology, investigations, problem solving, and writing as they explore concepts. Students may elect to take the AP Statistics Exam which may give them one semester college math credit. This course may be taken concurrently with other math courses. In this course, students will... • Explore one- and two-variable data • Collect data • Study probability, random variables, and probability distributions. • Understand sampling distributions • Develop an understanding of and work with Inference for Categorical and Quantitative Data • Interact with the digital platform, SaplingPlus, which extends the learning with an interactive eBook, a variety of video supports, and online homework with error-specific feedback • For more information on this class, please visit the AP site. This course carries a weighted grade.		

Course: MTHo25A/MTHo25B		Sports Statistics
Grade: 11-12	All Year	Course offered at: IRHS
Prerequisites: <i>Geometry and Algebra II</i>		
Mathematics and sports have always been connected, whether you're watching Monday Night Football or enjoying a game at the bowling alley. Sports Statistics offers students an opportunity to work with statistical reasoning and answer interesting sports-related questions. This course serves as excellent preparation for a college-level introductory statistics course and can be taken concurrently with other math courses. Students in this course will... • Interpret categorical and quantitative data • Understand and evaluate random processes underlying statistical experiments • Understand independence and conditional probability and use them to interpret data • Use the rules of probability to compute probabilities of compound events • Use probability to make and evaluate decisions <i>This course satisfies the fourth-year math requirement for admission into most colleges and universities.</i>		

Course: MTHo14A/MTHo14B		Pre-Calculus
Grade: 10-12	All Year	Course offered at: AHS CDO IRHS
Prerequisites: <i>Grade of "C" or better in Algebra II or teacher recommendation</i>		
Pre-calculus is a structured entry to advanced studies leading to calculus. This course builds on concepts learned in previous high school math courses, especially Algebra 2. Balance between algebraic, numerical, graphical, and verbal methods of representing problems helps to develop better understanding of mathematical concepts and critical thinking skills. In this course, students will... • Extend the behavior of functions and relations by using multiple representations, and covariational reasoning to investigate and explore quantities, their relationships, and how these relationships change • Model exponential, logistic, and logarithmic functions • Deepen understanding of trigonometric relationships and extend their reasoning with trigonometric reasoning to non-right triangles • Develop an understanding of analytic trigonometry, including fundamental identities, the Law of Sines and the Law of Cosines • Become fluent with the Unit Circle • Reason with vectors, as well as determine a vector from its initial point and terminal point, add and subtract vectors, and multiply a vector by a scalar • Use matrices to represent and manipulate data and solve systems of linear equations • Experience Discrete Mathematics including probability, sequences, and statistics and data • Participate in differentiated personalized learning through the ALEKS online resource		

Course: MTHo15A/MTHo15B		Introduction to Calculus
Grade: 10-12	All Year	Course offered at: CDO IRHS
Prerequisites: <i>Grade of "C" or better in Honors Algebra II or Pre-Calculus</i>		
Calculus, the study of how things change, provides a framework for modeling systems in which there is change, such as determining how particles, stars, and matter move and change in real time. In this course, students will... • Expand upon concepts developed in Algebra 2, including numerical, analytical, and graphical analysis • Further explore functions and analytical trigonometry • Study vectors, polar and parametric curves and matrices • Begin working with Limits and Differential Calculus This course carries a weighted grade.		

Course: MTHo16A/MTHo16B		AP Calculus AB
Grade: 11-12	All Year	Course offered at: AHS CDO IRHS
Prerequisites: "C" or better in Introduction to Calculus or teacher recommendation		
AP Calculus AB focuses students' attention on exploring the concepts, methods, and applications of differential and integral calculus. This course is equivalent to the first semester of college calculus. Students may elect to take the AP Calculus Exam which may give them one semester college math credit. In this course, students will... • Explore how limits are used to solve problems involving change and apply limits to define integrals • Apply derivatives to set up and solve real-world problems involving instantaneous rates of change • Learn how the Fundamental Theorem of Calculus connects integration and differentials • Apply properties of integrals and practice useful integration techniques • Solve differential equations and apply that knowledge to deepen understanding of exponential growth and decay • Make connections that all the solving of a wide range of problems involving net change over an interval of time and to find areas of regions or volumes of solids defined using functions • For more information on this class, please visit the AP site. This course carries a weighted grade.		

Course: MTHo17A/MTHo17B		AP Calculus BC
Grade: 12	All Year	Course offered at: AHS CDO IRHS
Prerequisites: Credit in AP Calculus AB or teacher recommendation		
AP Calculus BC focuses on students' understanding of calculus concepts and provides experiences with methods and applications. This course extends the content learned in AB to different types of equations and introduces the topics of sequences and series. This course is equivalent to the first and second semesters of college calculus. Students may elect to take the AP Calculus Exam which may give them one semester college math credit. In this course, students will... • Work with polar, parametric, and vector-valued equations • Student Euler's method, integration by parts, partial fraction decomposition, and improper integrals • Develop an understanding of differential and integral calculus, including concepts and skills of limits, derivatives, definite integrals, the Fundamental Theorem of Calculus, and series • Approach calculus concepts and problems when they are represented graphically, numerically, analytically, and verbally, and to make connections amongst these representations • Learn how to use technology to help solve problems, experiment, interpret results, and support conclusions • For more information on this class, please visit the AP site. This course carries a weighted grade.		