

MATH

1200400 **INTENSIVE MATHEMATICS** **Grades 9 - 12** **1/2 - 1 credit**

The focus of the course is to provide instruction and practice in mathematics skills and concepts. The content will include, but not be limited to, test-taking skills and strategies for mathematics. The mathematics content will be identified by a diagnosis of student's needs for instruction. This course is designed to help students requiring remediation to pass required state mandated end-of-course exams (EOCs). Course will meet requirements for elective credit.

1200310 **ALGEBRA I** **Grades 9 - 12** **1 credit**

The purpose of this course is to provide the foundation for more advanced mathematics courses and to develop the skills necessary to solve mathematical problems. Topics will include, but will not be limited to: sets; variables; structure and properties of the real number system; first-degree equations and inequalities; relations and functions; graphs; systems of linear equations and inequalities; integral exponents; polynomials; factoring; rational algebraic expressions; irrational numbers; radical expressions; quadratic equations. All students will be required to sit for and pass the state mandated Algebra I end-of-course exam (EOC) to earn credit.

1206300 **INFORMAL GEOMETRY** **Grades 10 - 12** **1 credit**

Prerequisite: Algebra I with teacher recommendation

The purpose of this course is to lay a foundation for the geometry topics that will be covered on the state mandated geometry end-of-course exam (EOC) and will cover the geometry of lines, planes, angles, and triangle. It is for the student who needs the concepts taught at a slower pace. **Informal geometry does not meet the geometry credit required for graduation.**

1206310 **GEOMETRY** **Grades 9 - 12** **1 credit**

Prerequisites: Successful completion of Algebra I

The purpose of this course is to emphasize critical thinking involving the discovery of relationships and their proofs and to develop the skills to apply the deductive method to mathematical situations. Topics will include, but will not be limited to, logic and reasoning; the study of Euclidean geometry of lines, planes, angles, triangles; similarity, congruence, and geometric inequalities; polygons and circles; area and volume; and constructions. All students will be required to sit for and pass the state mandated Geometry end-of-course exam (EOC) to earn credit.

1206320 **GEOMETRY HONORS** **Grades 9 - 12** **1 credit**

Prerequisite: See Honors Criteria

The purpose of this course is to provide a rigorous in-depth study of geometry, supported with hands-on discovery and experimentation. Topics will include, but will not be limited to: angles, perpendicularity and parallelism in a plane and in space; polygons with applications involving similarity and congruence; circles, spheres, platonic solids, area and volume studied through real world applications; coordinate geometry; transformational geometry; Euclidean geometry; and fractal geometry. Topics will be algebra-intensive, while emphasizing the formal language of mathematics.

A graphing calculator is recommended. A scientific calculator is required. This course is designed to prepare the student to take further AP courses in mathematics and to pass AP exams as well as be successful in Dual Credit/Dual Enrollment courses. All students will be required to sit for and pass the state mandated Geometry end-of-course exam (EOC) to earn credit.

1200330 **ALGEBRA II** **Grades 10 - 12** **1 credit**

Prerequisites: Successful completion of Algebra I and Geometry with teacher recommendation. Students entering grade 9 in 2012-2013 must successfully complete Algebra II as a graduation requirement.

The purpose of this course is to continue the study of the structure of algebra and to provide the foundation for applying these skills to other mathematical and scientific fields. Topics will include, but will not be limited to, the following: the review and extension of the structure and properties of the real number system; relations, functions, and graphs; polynomials and rational expressions; quadratic equations and inequalities; polynomial functions; rational and irrational exponents; logarithms, complex numbers, and word problems. A graphing calculator is recommended.

1200340 **ALGEBRA II HONORS** **Grades 10 - 12** **1 credit**

Prerequisite: See Honors Criteria

The purpose of this course is to present an in-depth study of the topics of Algebra II, with emphasis on theory and development of formulas, and circular and trigonometric functions and their applications. Topics include: algebraic structure; first and second-degree equations in one and two variables solved algebraically and graphically; systems of equations and inequalities; functions and relations; polynomials and rational expressions; exponents and radicals; logarithms; complex numbers; conic sections; polynomial equations; sequences and series; permutations, combinations and probability; matrices and circular functions; trigonometric identities and graphs of trigonometric functions. A graphing calculator is required. This course is designed to prepare the student to take further AP courses in mathematics and to pass AP exams as well as be successful in Dual Credit/Dual Enrollment courses.

1208300 **LIBERAL ARTS MATH** **Grades 10-12** **1 credit.**

Prerequisite: Successful completion of Algebra I and Geometry with teacher recommendation

This course is designed to reinforce basic Algebra and Geometry skills. The goals of this course are to develop proficiency with mathematical skills, expand the understanding of mathematical concepts, improve logical thinking, and promote success in future math courses. Topics will include but not be limited to: structure and properties of real numbers, various means to analyze and express patterns, relations and functions, analyzing tables and graphs, solving equations and inequalities algebraically and graphically, coordinate geometry, graphing, operations with rational algebraic equations, problems involving geometric shapes and their applications. A scientific calculator is required.

1201310 **ANALYSIS OF FUNCTIONS** **Grades 11 - 12** **1 credit**

Prerequisites: See Honors Criteria

Benchmarks studied include but are not limited to the following: Sine & Cosine; Trigonometric functions; solving real-world problems involving various mathematic concepts using technology; Pythagorean identities & Theorem; polar coordinates; DeMoivre's Theorem; graphing technology; matrix operations. A graphing calculator is required.

1210320 **AP STATISTICS** **Grades 11-12** **1 credit**

Prerequisite: See Honors Criteria

The purpose of this course is to introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students who successfully complete the course and examination may receive credit and/or advanced placement for a one-semester introductory college statistics course.

Students are exposed to 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: Producing models using probability and simulation.
4. Statistical Inference: Confirming models.

Benchmarks studied include but are not limited to the following: graphing for real-world situations; linear equations and inequalities; applications of exponential growth and decay; solve problems including patterns, population growth & decline, and simple/ compound interest; financial concepts such as the value of money, cash vs. credit, credit scores and reports, credit card bills, deferred payments, mortgages, interest rates and loans, retirement plans, investments, and personal budgeting.

Calculator Usage in Math Classes

The use of calculators in math classrooms promotes achievement, improves problem-solving skills, and increases understanding of mathematical ideas. All math teachers at PCHS incorporate calculator usage in their courses. Students are expected to supply their own calculators, along with paper, graph paper, pencils, and notebooks.