

## Math Course Descriptions

### **MATH C (9) (y)**

This course is designed to prepare students for Integrated Math 1. It will develop a stronger foundation in basic computational skills and include the following topics: analyzing patterns and data, proportional relationships, combining like terms, solving equations, distributive property, graphing linear equations, fractional equations, systems of equations, transformations and similarity, scatterplots, linear and exponential growth, laws of exponents, angles, Pythagorean Theorem, surface area and volume. Some of these topics may have been covered in previous 7<sup>th</sup> and 8<sup>th</sup> grade math courses. A student-owned scientific calculator will be beneficial for this course.

### **INTEGRATED MATH 1-P (9-10-11-12) (y)**

**Prerequisite: Math C with a grade of "C" or better or teacher recommendation** - This course explores functions, exponents, slope & rate of change, writing and graphing linear equations, dimensional analysis, transformations, multiplying polynomials, solving complex equations that include fractions and exponents, modeling two-variable data, exponential growth and decay, solving systems of equations with substitution and elimination, congruence and coordinate geometry, inequalities, data representations, and constructions. Student-owned scientific calculators (or graphing calculators) are strongly encouraged for this course. *Meets UC/CSU "C" requirement.*

### **INTEGRATED MATH 2-P (9-10-11-12) (y)**

**Prerequisite: Integrated Math 1 with a grade of "C" or better or teacher recommendation** - This course includes quadratics and other functions, factoring, similarity, trig ratios and inverse trigonometry, probability, relationships of right triangles and special ratios, zero product property, completing the square, quadrilaterals, angles and areas of polygons, circles, volume, surface area, imaginary numbers, and inequalities. Student-owned scientific calculators (or graphing calculators) are strongly encouraged in this course. *Meets UC/CSU "C" requirement.*

### **INTEGRATED MATH 3-P (9-10-11-12) (y)**

**Prerequisite: Integrated Math 2 with a grade of "C" or better or teacher recommendation** - This course aims to apply and extend what students have learned in previous courses by focusing on finding connections between multiple representations of functions, transformations of different function families, finding zeros of polynomials and connecting them to graphs and equations of polynomials, modeling periodic phenomena with trigonometry, and understanding the role of randomness and the normal distribution in making statistical conclusions. *Meets UC/CSU "C" requirement.*

### **ADVANCED MATH CONCEPTS –P (11-12) (y)**

**Prerequisite: Integrated Math 3 with a grade of "C" or better or teacher recommendation** - This is a rigorous, college preparatory math course that covers topics from a variety of fields. This course is designed to show some of the essence and quality of mathematics, and to enhance precision in the evaluation and expression of ideas, thereby developing a student's quantitative reasoning skills. Students in this course are expected to have a firm grasp of concepts through Integrated Math 3 (Algebra 2), and be prepared to both build upon previous concepts as well as explore a variety of new topics. Students will formulate ideas, set goals, and demonstrate application through group work, presentations, individual assessments, homework and special projects. *Meets UC/CSU "C" requirement.*

**PRE-CALCULUS – P (11-12) (y)**

**Prerequisite:** *Integrated Math 3 with a grade of "C" or better or teacher recommendation* - Meets UC/CSU "C" requirement. Fourth year in a four year integrated course sequence. Graphing calculators are used daily (T1-83). Students are strongly recommended to supply their own. Topics to be covered are areas under curves, periodic functions, polar coordinates, statistics, mathematical modeling, vectors and parametric equations, limits, derivatives and conic sections. Upon successful completion of this course, students are prepared to enter first semester Calculus.

**AP CALCULUS AB-P (11-12) (y)**

**Prerequisite:** *Trigonometry/Pre-Calculus with a grade of "B" or better or teacher recommendation* - Equivalent to first semester college Calculus, this course is designed to prepare students to take the Advanced Placement Calculus AB Exam. Topics include limits, derivatives, applications of derivatives, integrals, and applications of integrals. It requires a solid background in Algebra II. Student-owned graphing calculators are strongly encouraged for this course. *Meets UC/CSU "C" or "G" requirement.*

**AP STATISTICS-P (10-11-12) (y)**

**Prerequisite:** *Algebra II with a grade of "B" or better or teacher recommendation (may be taken concurrently with Trig/Precalculus, or Honors Trig/Precalculus, or AP Calculus)* - The purpose of this course is to introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students are exposed to four broad conceptual themes: 1) exploring data; 2) planning a study; 3) anticipating patterns in advance; and 4) statistical inference. Students who successfully complete the course and examination may receive credit and/or advanced placement for a one-semester introductory college statistics course. Our course would take place over a full year, similar to the AP Calculus course currently in place. *Meets UC/CSU "C" or "G" requirement.*