C. MATHEMATICS

VUSD Graduation Requirement - 3 years

All students must pass Integrated Math 1 (only -Class of 2021 & beyond) and Integrated Math 2 (up to Class of 2020)

A-G College Entrance Requirement- 3 years with C or better

including Integrated Math /Algebra1, Int. Math 2 and Int. Math 3

All classes are college prep and meet the UC/CSU "C" math requirement unless otherwise noted

M690 Quantitative Reasoning (9)

- *Non-college prep*

This course is for the student who has been identified as having learning gaps that will affect their success in high school math and beyond. Thus this course will seek to fill in these gaps through the use of a variety of instructional methods and a sequenced computer based curriculum. Topics include order of operation, number sense, arithmetic structures, linear equations, and modeling.

M651 Integrated Math 1 (9-12) or M652 P Lang Integrated Math 1 or M653 Integrated Math 1 SEI

- *This is the first year-long course of a three –year high school mathematical sequence.*

Integrated Math 1 is designed to combine some of the basic principles of Algebra 1, Geometry, and Statistics. Topics include Linear and Exponential functions, Rigid Transformation and Constructions, Interpreting and Analyzing Univariate and Bivariate data. The expectation is to develop and maintain a growth mindset for students and teach students how to learn math in a collaborative process where multiple methods and representations are celebrated. The Common Core Standards for Mathematical Practices will be addressed throughout the course.

M655 Integrated Math 2 (10-12) or M658 Integrated Math 2SEI or M657 Integrated Math 2 PLang

- *Prerequisite: successful completion of Integrated Math 1*

The second of a three-year high school math sequence, this course is designed to use patterns, modeling and conjectures to build student understanding and competency in math. It aligns with the five goals of the UC math requirement. Students will learn the mathematical sense-making, make and test conjectures and justify conclusions, use mathematical models to represent real-world data to provide clear and concise answers, and have computational and symbolic fluency.

M660 Integrated Math 2 with Math Analysis (10-12) or M658 Integrated Math with Math Analysis SEI

- *Prerequisite: successful completion of Integrated Math 1 with advanced achievement.*

This second course of a three-year accelerated high school math sequence includes topics from Math provide clear and concise answers, and have computational and symbolic fluency. Analysis in addition to the ones covered in Integrated Math 2. Students will learn the mathematical sense-making, make and test conjectures and justify conclusions, use mathematical models to represent real-world data to provide clear and concise answers, and have computational and symbolic fluency.

M800 Integrated Math 3 *or* M801 Integrated Math 3 SEI

- *Prerequisite: successful completion of Integrated Math 2*

Integrated Math 3 completes the three-course sequence of Integrated Mathematics courses required for high school graduation. This yearlong course addresses the Common Core Standards for Integrated Math 3 as described in the state framework. This course brings together knowledge acquired in the previous two courses and uses it as a bridge to expand into more complex territory. Students expand their knowledge of functions, right-triangle trigonometry, and experiences with data as they solve sophisticated problems in preparation for enrolling in advanced mathematics courses.

M810 Integrated Math 3 with Math Analysis

- *Prerequisite: successful completion of Integrated 2 with Math Analysis*

This course will cover the same topics found in Integrated 3 with respect to the California Common Core State Standards. In addition, there will be topics from Math Analysis added to this course that will be needed for success in advanced college level mathematics courses. In addition, students will be asked to make sense of the mathematics in a deeper way to prepare them for the rigors of college level advanced math courses.

M803 Integrated Math 3 IB Math Studies (11-12)

- *Prerequisite: successful completion of Integrated 2 with Math Analysis*
- *Full IB candidate*

This course will cover the same topics found in Integrated Math 3 with respect to the California Common Core State Standards. Students expand their knowledge of functions, right-triangle trigonometry, and experiences with data as they solve sophisticated problems in preparation for enrolling in advanced mathematics courses. In addition, it includes topics in logic, differential calculus, IB Exam question strategies and a focus on the mathematical research paper. Moreover, the course will include several small projects for each topic where students are expected to use the mathematics to investigate a concept or prove a conjecture. Lastly, this course will provide time for the IB Math Studies internal assessment project as well as prepare students to successfully take the IB Math Studies SL exam.

-

M680 Financial Algebra (11-12)

- *Prerequisite: successful completion of Int. Math 1 and Int. Math 2*

This mathematical modeling course is algebra-based, applications- oriented, and technology-dependent. The course addresses college preparatory mathematics topics from Advanced Algebra, Statistics, Probability, Pre-calculus, and Calculus under seven financial umbrellas: banking, investing, credit, employment and income taxes, automobile ownership, independent living, and retirement planning and household budgeting. It allows students to experience the interrelatedness of mathematical topics, find patterns, make conjectures, and extrapolate from known situations to unknown situations. Students will be expected to use a variety of problem-solving skills and strategies in real-world contexts, and to question outcomes using mathematical analysis and data to support their findings.

M420 IB Math Studies SL (12)

- *Prerequisite: successful completion of Integrated Math 3 and*
- *Full IB candidate*

Math Studies is an elective math course open to all students who have successfully completed Int. Math 3. The curriculum emphasizes real world applications in probability /statistics, trigonometric functions, logic and polynomial functions. This course will prepare students for the standard level IB exam and all students are required to complete an internal assessment project due in the spring.

M425 Pre-Calculus (11-12)

- *Prerequisite: successful completion of Financial Algebra, or Int. Math 3*

Pre-Calculus will prepare a student for college level mathematics (for seniors) and for AP Calculus AB . The course reviews topics from Int. Math 2 & 3. Additional topics include right triangle trigonometry, laws of sines and cosines, graphs of all trigonometric functions, trigonometric identities, and an introduction to matrices and conic sections.

M400 Probability/Statistics/Trigonometry (11-12)

- *Prerequisite: successful completion of Financial Algebra or Int Math 3*

The purpose of this Advanced Placement course in Statistics is to introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students are exposed to four broad statistical conceptual themes: 1) Exploring Data; 2) Planning a Study; 3) Anticipating Patterns; 4) Statistical Inference

M405 AP Statistics (11-12)

- *Prerequisite: successful completion of Int. Math 3*

This course uses real data from sports, business, science, health, education and other fields to teach students how to understand and analyze data. Topics of study include surveys, experiments, correlation, probability and inference. This is a fast paced course with the goal of preparing the students for the AP Statistics exam.

M440 AP Calculus AB (11-12)

- *Prerequisite: successful completion of Int. Math 3 with MA or Pre-Calculus*

This very demanding course, Calculus AB is the equivalent to one semester of a university analytic geometry/ calculus course. Topics include functions, graphs, limits, derivatives and integrals.

M446 IB Mathematics HL2 (12)

- *Prerequisite: successful completion of Int. Math 3 with MA or AP Calculus*

This IB Mathematics class is designed for students who will be expecting to either study mathematics in college or as a major component of a related subject such as physics, engineering or technology. Students are required to submit a portfolio consisting of two extended problems – one on a mathematical investigation and one on mathematic modeling. They are also expected to take the IB Mathematics Exam HL in the spring. Most colleges will give college credit for a passing score on the IB exam.

NOTE: It is highly recommended that a student earn an A, B, or C in the previous course to move on to the next level. If a student fails, they must retake the course to receive credit. A student that receives a D is recommended to retake the course to enhance their skills. **If a student repeats a class, credit will only be awarded one time for the higher grade.**

VHS—PALOMAR COLLEGE DUAL ENROLLMENT COURSES

DEM015—MATH 15—Prealgebra— (3 units, 5 high school credits)

- *Non-degree Applicable*

The basic arithmetic operations, integers, fractions, decimals, percents, ratio and proportion, basic geometric concepts, problem-solving techniques and an introduction to algebraic thinking.

DEM050—MATH 50 - Beginning Algebra—(4 units, 10 high school credits)

- *Prerequisite: A minimum grade of "C" in MATH 15 or eligibility determined through a math placement proc*
- *Meets CSU/UC "c" math credit*

Elementary algebra which emphasizes mathematical reasoning, problem solving, real-world applications using numerical, algebraic, and graphic models. Topics include problem-solving techniques, algebraic expressions, polynomials, linear equations, linear equalities, linear and nonlinear graphs, systems of linear equations in two variables, integer exponents, proportions, and radicals.

DEM060—MATH 60 - Intermediate Algebra—(4 units, 10 high school credits)

- *Prerequisite: A minimum grade of "C" in MATH 50 or eligibility determined through a math placement process*
- *Meets CSU/UC "c" math credit*

Graphic, numeric, analytic and applied perspectives on topics including linear, quadratic, exponential and logarithmic functions, exponents and radicals, linear and nonlinear systems of equations and inequalities.

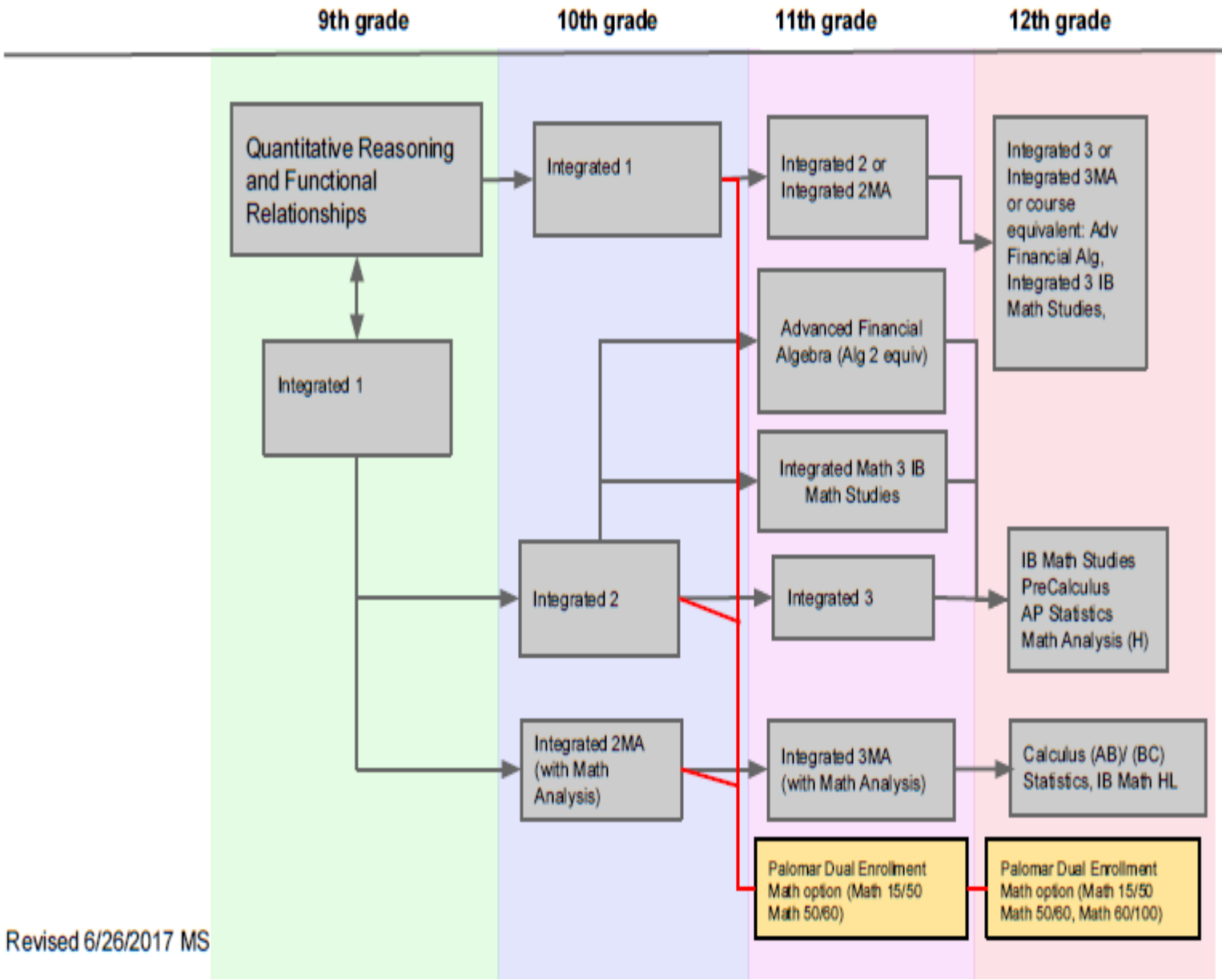
DEM110—MATH 110 - College Algebra—(4 units, 10 high school credits)

- *Prerequisite: A minimum grade of "C" in MATH 60 or eligibility determined through a math placement process*
- *Transfer acceptability: CSU; UC—Math 110 & 135 combined: maximum credit, one course.*

Study of the behavior and characteristics of functions from graphic, numeric, analytical and applied perspectives, including general polynomial functions, rational functions, exponential and logarithmic functions, and sequences. Systems of equations in several variables with an emphasis in matrix solutions.

Refer to Math sequence on next page

VUSD High School Math Pathway



Revised 6/26/2017 MS