



Integrated Mathematics FAQs: A Decision for All Learners

Why Integrated?

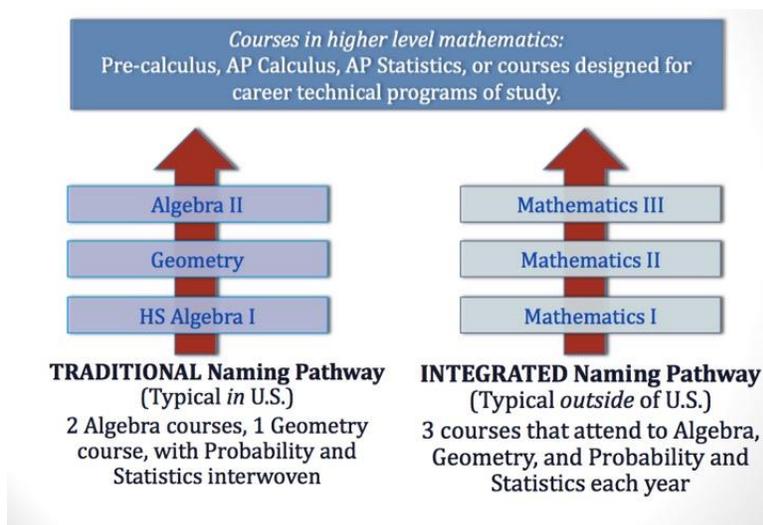
The decision to adopt an Integrated Mathematics Pathway reflects Glendale’s commitment to offering students the highest quality mathematics program. The Integrated Mathematics Pathway offers the opportunity to focus on developing conceptual understanding and to help students see how the disciplines of mathematics are intertwined. The countries that consistently outperform the United States on the Program for International Student Assessment (PISA) have long embraced Integrated Mathematics. The CAASPP statewide mathematics assessment in eleventh grade is an integrated exam. These are just two of the compelling reasons that GUSD is implementing the new standards through an Integrated Mathematics Pathway. Furthermore, knowing that our existing kindergarten through middle school programs already use an integrated approach to mathematics instruction, allows for a more natural extension of these programs in high school and provides additional rationale for selecting an integrated pathway.

What Is the Integrated Approach?

The integrated approach is a sequence of three courses, each of which includes algebra, geometry, and statistics standards. The theory underlying this approach is that, in the real world, problems do not come in a box labeled “algebra” or “geometry.” By using an “integrated” approach, students **can decide** what skills to call upon to solve a particular problem, no matter what the content area. Students can use a combination of skills from algebra, geometry, and statistics, depending on their analysis and approach to solving a problem.

How Are the Traditional and Integrated Approaches Similar?

Traditional and integrated courses cover the same content and practice standards. Across the three courses, students in the traditional pathway will study the same content and mathematical practices as students in the integrated pathway.



How Are the Traditional and Integrated Approaches Different?

The difference between the traditional and integrated pathways is how the standards are organized into courses. For example, in the traditional pathway, geometry is its own course. In the integrated pathway, geometry standards are included in all three courses. The integrated pathway is intended to promote understanding of the connections across all conceptual categories, as standards from all conceptual categories are included in each of the three courses. Stated differently, the integrated pathway is intended to promote coherence across the various domains.

What Do the California State Standards Require and How Will an Integrated Pathway Help Students Meet These Requirements?

Independent of the names of the courses students take, the California State Standards require all high school students to develop integrated understandings of algebra, geometry, and data analysis, where concepts, skills, and representations in each content strand support concepts, skills, problem solving, and reasoning in the other strands. Students are assessed on their understanding of these concepts on the 11th grade CAASPP test. Juniors who score at the highest performance level (“Standard Exceeded”) are considered ready for mathematics college-level coursework and are exempt from taking the Entry Level Mathematics (ELM) exam used by the California State University (CSU) and participating California Community Colleges (CCCs) to determine Early Assessment Program (EAP) status.

Will There Be Course Materials for Integrated Courses?

Yes. There are published curricula for California State Standards for mathematics taught through the Integrated Math Pathway. California State Standards aligned materials will be carefully reviewed and evaluated by all our secondary mathematics teachers to ensure they meet the needs of all students. GUSD is in the process of narrowing down two Integrated Mathematics textbooks to pilot during the 2017-2018 school year.

Will Teachers Be Prepared to Teach Integrated Courses?

Yes. To support teachers in the transition to teaching the California State Standards for Math and the Standards for Mathematical Practice, GUSD is committed to providing professional development for all math teachers. Three full days of professional development within GUSD are set aside each school year. As we move into a new textbook adoption, professional development to train teachers in the new program will be built into the pilot and adoption process. Our secondary math teachers are credentialed to teach both in traditional and integrated pathways.

What Is the Timeline for Implementation of the Integrated Math Pathway?

Beginning at the start of the 2017-2018 school year, all Algebra 1 middle and high school teachers will pilot the two Integrated Math textbook options. Math II will be developed in the 2017-2018 school year for implementation in the 2018-2019 school year. Math III and Math III Honors course development will be completed during the 2018-2019 school year for implementation in the 2019-2020 school year.

How Did GUSD Make the Decision to Move to an Integrated Math Pathway?

Beginning in April 2016, the Secondary Math Curriculum Study Committee (CSC), a multi-stakeholder group, consisting of high school and middle school mathematics department chair teachers, curriculum specialists, and administrators began the conversation to develop a comprehensive picture of math instruction in GUSD, to cultivate a clear understanding of our collective interests related to math instruction, and to identify the options for math pathways that will effectively achieve those interests. Our Secondary Math CSC carefully researched options and visited several local school districts in December 2016 to gain more information and ascertain the strengths and weaknesses of moving to an Integrated Mathematics Pathway. Each secondary math department chair met with their departments in January to share research and gain feedback from all secondary math teachers across GUSD. This

ultimately led to the CSC voting to recommend an Integrated Mathematics Pathway. Students will continue to be prepared to excel in advanced high school mathematics courses such as: Math Analysis, AP Calculus (AB and BC), and AP Statistics.

Will High Schools Offer Courses in Both the Traditional and Integrated Pathways?

Yes and no. As we transition to the Integrated Mathematics Pathway, we will have both integrated and traditional courses in our high schools. We have students who are currently enrolled in Algebra 1. All currently enrolled students who have successfully completed an Algebra or Geometry course will continue in the traditional mathematics pathway through high school graduation. However, as we phase in the integrated courses, the corresponding traditional course will be phased out as there will no longer be students who need them. For instance, secondary schools no longer offer Algebra 1 and instead offer Math I. In the 2018-2019 school year, Geometry will be replaced by Math II, and in the 2019-2020 school year Algebra 2 will be replaced by Math III.

Why Are so Many Districts and/or States Moving towards Integrated Mathematics?

With the inclusion of the Integrated Mathematics approach in the new state standards, many districts and states are choosing to make the move at this time in recognition that Integrated Mathematics Pathway reflects the new standards' emphasis on building conceptual understanding and making connections. For a more complete answer, follow the link below to an article from *Education Week*, November 2014. "In Transition to Common Core, Some High Schools Turn to Integrated Math" <http://www.edweek.org/ew/articles/2014/11/12/12cc-integratedmath.h34.html>

Will Math I Meet the High School Algebra 1 Requirement for High School Graduation?

Yes. Assembly Bill 220 aligns "the mathematics course requirement for high school graduation to the California Common Core State Standards (CCSS) for mathematics and specify that a student must complete at least one course or a combination of courses in mathematics that meet or exceed the rigor for Mathematics I or Algebra 1. AB 220 stipulates that a student who completed an Algebra 1 course or courses aligned to the Mathematics Content Standards adopted in 2010 meets this graduation requirement." ([Torlakson Memo to State Board of Education – June 24, 2015](#))

Will Public and Private Universities Accept Integrated Mathematics Courses?

Yes. The University of California (UC) states that "although schools may follow the traditional Algebra 1 – Geometry – Algebra 2 format, other sequences may treat these topics in an integrated fashion. Combinations of some integrated courses, algebra, geometry and other courses that integrate the Common Core Standards for Mathematical Practice for high school, including courses that rigorously apply these standards in the development of career-related skills, can also satisfy the 'C – Mathematics' subject requirement."

The UC System Requires Students to Complete Algebra 1, Geometry and Algebra 2. How Will Integrated Math Meet This Requirement?

With the implementation of California State Standards statewide, UC recognizes the significant curriculum changes being made as high schools develop mathematics transition pathways to meet school- and district-based needs. Upon completion of Math I, Math II and Math III, students will have fully met the mathematics ("C") subject requirement for the UC system (meets high school a-g requirements). <http://www.ucop.edu/agguide/a-g-requirements/c-mathematics/faq/index.html>

Will Math II Suffice for the UC Requirement of a Yearlong Geometry Course?

Yes. Beginning with students applying to the University of California for fall 2015 admission, a yearlong Geometry course must be completed or a part of an Integrated Mathematics course sequence (Math II) must be completed.