CAPUCHINO PRE-IB MATH 1

GRADE: 9 CREDITS: 10

COLLEGE RECOMMENDED? YES

PREREQUISITES: None

This first-year math course is intended to help students learn and develop solid mathematical thinking and to demonstrate mastery of CCSS Integrated Math 1 content and practice standards, which include key concepts from Algebra, Geometry, and Statistics. This includes study of linear equations, solving equations, visual patterns and functions, one- and two-variable statistics, foundations of geometry, geometric transformations, and congruence. This course is structured around Capuchino's adaptation of the six Approaches to Teaching defined by IB.

1. **Educational practice is based on inquiry**
2. **Learning is focused on conceptual understanding**
3. **Educational practice and personal identity are developed in local and global contexts**
4. **Instruction is focused on effective teamwork and collaboration**
5. **Curriculum, instruction, intervention, and support are differentiated to meet the needs of all learners**
6. **Instruction and educational practice is informed by formative and summative assessment**

This course employs standards-based grading (in both Foundation Quizzes and Performance Tasks), so that all students can reach proficiency in key learning targets. Students write IB-style reports for each Performance Task, to begin preparing them for their future IB Internal Assessment. There is a heavy emphasis on developing agency and mathematical identity for all students; this includes a strong emphasis on group work, problem solving, and mathematical discourse.

Note: the three course sequence of Capuchino Pre-IB Math 1, Math 2, and Math 3 cover the same content standards as the traditional Algebra 1, Geometry, Algebra 2 sequence, but in a different order with a greater emphasis on the connections between strands.

CAPUCHINO PRE-IB <u>EL</u> MATH 1

GRADE: 9 CREDITS: 10

COLLEGE RECOMMENDED? YES

PREREQUISITES: None

This course teaches the same concepts as Capuchino Pre-IB Math 1, but materials and strategies are adapted to meet the needs of English Language Learners. This course is taught as a two hour block with Sheltered Strategic Algebra Support as the second hour.

SHELTERED STRATEGIC ALGEBRA SUPPORT

GRADE: 9-12 CREDITS: 10

This is the *second hour* of Capuchino Pre-IB EL Math 1 where students have an opportunity to practice what they are learning in EL Math 1. All students are provided with a subscription to the online math tutoring program Mathspace.co as well as individual attention from the teacher, peer tutors and an instructional aide.

CAPUCHINO PRE-IB MATH 2

GRADE: 10 CREDITS: 10

COLLEGE RECOMMENDED? YES

PREREQUISITES: None

This second-year math course continues and builds on the practices and structures of Capuchino Pre-IB Math 1. Students deepen their mathematical thinking, while learning the CCSS Integrated Math 2 content and practice standards, which include further concepts from Algebra, Geometry, and Statistics, such as systems of equations, non-linear functions, function transformations, probability, similarity, trigonometry, and coordinate geometry.

~~**GEOMETRY**~~

~~**GRADE: 9-12 CREDITS: 10**~~

~~**COLLEGE RECOMMENDED? YES**~~

~~**PREREQUISITES: Students must pass Algebra I**~~

NOTE: this course is no longer offered from 2022-2023 onward, as students take Pre-IB Math 2 instead

In our Geometry course, students learn about segments, lines, angles, geometric constructions, properties of parallel lines, transformations, congruence, similarity, logic and proof, right triangle trigonometry, polygons, circles, probability, area, and volume, as set by the California Common Core State Content Standards for Geometry. In addition,

students have access to a variety of instructional practices to ensure that they can continue their mastery of the California Common Core State Practice Standards for Mathematics. Students also have the opportunity to continue practicing their Algebra I concepts. A scientific calculator is required.

ALGEBRA II

GRADE: 9-12 CREDITS: 10

COLLEGE RECOMMENDED? YES

PREREQUISITES: Students must pass both Algebra I and Geometry

NOTE: this course will be replaced by Pre-IB Math 3 starting in 2023-2024

This course covers the California Common Core Algebra II standards. Students study linear, quadratic, exponential, and logarithmic equations and functions. In addition series and sequences, statistics, and probability are taught. A graphing calculator is required. (recommended calculator: TI-83, TI-84)

INTRO TO DATA SCIENCE

GRADES: 11 - 12 CREDITS: 10

COLLEGE RECOMMENDED? YES

PREREQUISITES: None (must be in 11th or 12th grade)

Intro to Data Science is a college prep course, taught with UCLA's curriculum. In this class, students learn to use the coding language R to evaluate real world data sets covering topics ranging from sports and video games to police fatalities and workplace discrimination. This is a challenging course with a significant workload, because students will be learning to code while understanding deep and applicable subjects in statistics and data science. The units of study include: Where Data Come From, Exploring Variation, Modeling Variation - The Empty Model, Modeling Variation - The Complex Model, Evaluating Models, and Model Comparison with the F Distribution. This course is a good introductory class that anyone can take, and provides a solid foundation for further study in statistics, whether in IB Math Applications or in college. This course is now recognized as an alternative way to meet the 3rd year math A-G requirement, meaning that students can take Data Science (in lieu of Algebra 2) and be eligible to apply to a CSU/UC.

INTEGRATED MATH II

GRADE: 10-12 CREDITS: 10

NON-COLLEGE ELECTIVE

PREREQUISITES: Geometry

This course is intended to meet the needs of students who have completed Algebra 1 and Geometry and are not yet ready to continue in the college preparatory path. The course includes substantial work in geometry as well as probability and statistics with review of Algebra throughout. The core Geometry topics include lines, angles, geometric constructions, properties of parallel and perpendicular lines, congruence, similarity, right triangles, trigonometry, polygons, transformations, circles, area and volume. Review and introduction to key Algebra 2 topics include linear, quadratic and exponential equations and functions. The course emphasizes applications and makes extensive use of technology.

IB MATH Applications and Interpretations (SL/HL) I (Standard Level, Higher Level year 1)

GRADE 10-12 CREDITS: 10

COLLEGE RECOMMENDED? YES

PREREQUISITES: Students must meet the following criteria: C or better in Algebra II or an A in Geometry with summer work to move to this class. A previous teacher's recommendation is needed.

This is the 1st year of IB Math and both Standard Level and Higher Level Students are in the same course. This course is intended for highly proficient students engaged in meeting and or exceeding state and district standards in Trigonometry / Pre-Calculus. It includes the study of algebra, functions and equations, Voronoi diagrams, unit circle and trigonometry (functions, equations and identities), non-right angle trigonometry, sequences and series, binomial expansion, linear modeling and probability. It is designed to prepare students for the International Baccalaureate Mathematics – Standard Level Exam. Special attention is paid to the internationalism of mathematics and to help students to appreciate the multiplicity of cultural and historical perspectives of mathematics. Students complete investigation and/or modeling portfolios related to the topics taught in this course. A graphing calculator is required. (recommended calculator: TI-83, TI-84)

IB MATH Applications and Interpretations SL II (Standard Level, year 2)

GRADE 11-12 CREDITS: 10

COLLEGE RECOMMENDED? YES

PREREQUISITES: Students must meet the following criteria: C or better in Mathematics Applications and Interpretations SL I and a previous teacher's recommendation.

This college level course is designed for highly proficient students. The course addresses calculus as well as all topics not already taught during MATH Applications and Interpretations SL/HL I, such as descriptive statistics, modeling functions, discrete random variables and normal distribution. During this year students complete an internal assessment which consists of a written paper of a mathematical topic of their choice. Furthermore, there will be an intense, comprehensive exam at the end of the course in May. A graphing calculator is required. (recommended calculator: TI-83, TI-84)

IB MATH Applications and Interpretations HL II (Higher Level, year 2)

GRADE 11-12 CREDITS: 10

COLLEGE RECOMMENDED? YES

PREREQUISITES: Students must meet the following criteria: C or better in Mathematics Applications and Interpretations SL I and a previous teacher's recommendation.

This college level course is designed for highly proficient students. Students taking this HL class will be enrolled in the IB Math Applications and Interpretations SL II, however, will learn additional material through asynchronous instruction. Some of these topics are matrices, vectors, complex network, graph theory, slope fields, Euler's method, Poisson distribution.