1. Mathematics: Analysis and Approaches

This course will be offered at both SL and HL. It is designed for students who enjoy developing their mathematics to become fluent in the construction of mathematical arguments and develop strong skills in mathematical thinking. They will explore real and abstract applications, sometimes with technology, and will enjoy the thrill of mathematical problem solving and generalisation. This course helps analysing abstract math theories at its foundation. This course covers topics like advance calculus and integration to train students in the discipline of pure mathematics.

Mathematics: analysis and approaches

- Emphasis on algebraic methods
- Develop strong skills in mathematical thinking
- Real and abstract mathematical problem solving
- For students interested in mathematics, engineering physical sciences, and some economics courses.

2. Mathematics: Applications and Interpretation

This course will be offered at both SL and HL for students who are interested in developing their mathematics for describing our world, modelling, and solving practical problems using the power of technology. Students who take Mathematics: Applications and Interpretation will be those who enjoy mathematics best when seen in a practical context.

Mathematics: applications and interpretation

- Emphasis on modelling and statistics
- Develops strong skills in applying mathematics to the real-world
- Mathematical problem-solving using technology
- For students interested in social sciences, natural sciences, medicine, statistics, business, engineering, some economics, psychology, and design

Course content

There are 5 core topics for both courses: Number and algebra, Functions, Geometry and trigonometry, Statistics and probability and Calculus. Both courses also complete an individual exploration (IA).

For Analysis and Approaches, a calculator is not allowed on Paper 1 for HL and SL. Also, this course places an emphasis on algebra and calculus. For Applications and Interpretation, a calculator is allowed on all exams. Also, this course places an emphasis on statistics, modelling, and use of technology.

Assessment Details

Course Name	Paper

Analysis and Approaches (HL)	Paper 1: Both short and long Paper 2: Both short and long Paper 3: Problem solving paper with graphing
Analysis and Approaches (SL)	Paper 1: Both short and long Paper 2: Both short and long
Applications and Interpretations (HL)	Paper 1: Short questions Paper 2:Long questions Paper 3: Problem solving paper with graphing.
Applications and Interpretations (SL)	Paper 1: Short questions Paper 2: Long questions

Internal Assessment: Mathematical exploration

Who should choose which course in mathematics?

If you are interested in a career in STEM, you should choose Math HL in either mathematics.

Mathematics: Analysis and Approaches gives emphasis on algebra and calculus. Potential university courses include pure mathematics, physics, engineering, and some economic courses.

Mathematics: Applications and Interpretations gives emphasis on statistics, modelling, and use of technology. Potential university courses include biology, psychology, business, medicine, design, geography, and some economic courses.

Note: Most universities prefer Mathematics HL courses for engineering stream. Students and parents need to find out the pre requisites for a particular course.

References

International Baccalaureate Mathematics: analysis and approaches course outline (link).

International Baccalaureate Mathematics: application and interpretation course outline (link).

Presentation on the subject developed internally by EGS. (link)

IB document on new mathematics courses (link)