THE WORTHGATE SCHOOL
CANTERBURY

COURSE DESCRIPTOR

IB AI SL

SUBJECT OVERVIEW

This course recognizes the increasing role that mathematics and technology play in a diverse range of fields in a data-rich world. As such, it emphasizes the meaning of mathematics in context by focusing on topics that are often used as applications or in mathematical modelling. To give this understanding a firm base, this course also includes topics that are traditionally part of a pre-university mathematics course such as calculus and statistics. The course makes extensive use of technology to allow students to explore and construct mathematical models. Mathematics: applications and interpretation will develop mathematical thinking, often in the context of a practical problem and using technology to justify conjectures.

Students who choose Mathematics: applications and interpretation at SL or HL should enjoy seeing mathematics used in real-world contexts and to solve real-world problems. Students who wish to take Mathematics: applications and interpretation at higher level will have good algebraic skills and experience of solving real-world problems. They will be students who get pleasure and satisfaction when exploring challenging problems and who are comfortable to undertake this exploration using technology

PRIOR LEARNING REQUIRED

It is expected that most students embarking on this course will have studied mathematics for at least 10 years. There will be a great variety of topics studied, and differing approaches to teaching and learning. Thus, students will have a wide variety of skills and knowledge when they start this course. Most will have some background in arithmetic, algebra, geometry, trigonometry, probability and statistics. Some will be familiar with an inquiry approach and may have had an opportunity to complete an extended piece of work in mathematics. Areas of number and algebra; functions; geometry and trigonometry and probability are considered to be assumed prior learning for the mathematics courses. It is recognised that this may contain certain aspects unfamiliar to some students, but it is anticipated that there may be other topics in the syllabus itself which these students have already encountered.

IELTS 5.5 or equivalent

EXAM BOARD

IB

COURSE CONTENT

Year 1	Year 2
Core topics Number Algebra Geometry Trigonometry Statistics	Approximations and Error Loans and Annuities Functions Modelling Bivariate Statistics Quadratic Functions Direct and Inverse Variation Exponentials and Logarithms Trigonometric Functions Differentiation Properties of curves Applications of differentiation Integration Discrete Random Variables The Normal Distribution Hypothesis testing Voronoi Diagrams

ASSESSMENT

Formal internal assessments take place regularly once every half term and homework is set on a regular basis. Grades are determined by final examinations, which take place in May/June at the end of the 2-year course.

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Paper	Length of paper	Weighting
Paper 1 Technology required Compulsory short-response questions based on the syllabus *Questions on this paper will vary in terms of length and level of difficulty.*	90 minutes 80 marks	40 %
Paper 2 Technology required Compulsory extended-response questions based on the syllabus. *Questions on this paper will vary in terms of length and level of difficulty*.	90 minutes 80 marks	40 %

Internal assessment This component is internally assessed by the teacher and externally moderated by the IB at the end of the course. Mathematical exploration Internal assessment in mathematics is an individual exploration. This is a piece of written work that involves investigating an area of mathematics	Levels 1-7 20 marks (completed in the second year of the course)	20%

TEXTBOOKS/REVISION GUIDES

Title	ISBN	Author
Haese mathematics Core topics **SL 1**	978-1-925489-55-2	Michael Haese Mark Humphries Chris Sangwin Ngoc Vo
Haese mathematics Analysis and Interpretations **SL 2**	978-1-925489-57-6	Michael Haese Mark Humphries Chris Sangwin Ngoc Vo

Revision resources Maths AA SL

https://www.revisionvillage.com/ib-math/analysis-and-approaches-sl/
https://ibmathsresources.com/mathsdingbats/

HIGHER EDUCATION PATHWAYS

Mathematics may be a beneficial choice for students considering careers in, for example, finance, planning, healthcare systems or coding, tourism industries, the technology industry, social informatics, or urban planning. Mathematics helps students to understand the value of systematic approaches, how to analyse complex real-world contexts, how to communicate this concisely and precisely and understand the implications of conclusions.

COMPLEMENTARY SUBJECTS OF STUDY

Chemistry, Psychology, Economics, Physics, Business

CURRICULUM DIRECTOR

Mr S C Graham