Specialist Mathematics

Subject Guide

Mathematics is the study of patterns in numbers and space. It provides both a framework for thinking and a means of symbolic communication that is powerful and concise. Mathematics is a means by which people can understand and manage their environment. It has applications in all human activities and provides a universal way of solving problems in science, business and the Arts.

All students include at least one Mathematics subject in their VCE course of study. Students taking this subject should have a very strong mathematical background. Any student taking this subject must also be taking Mathematical Methods Units 1 and 2 or Units 3 and 4.

In this study students have access to worthwhile and challenging mathematical learning activities. Students will learn and practise mathematical skills and techniques to find solutions to standard problems. They further extend their mathematical knowledge and skills through the use of computer algebra system technology. Students undertake investigative projects and solve problems in unfamiliar and real-life situations.

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Unit focus areas

Unit 1

Proof and number
Graph theory
Logic and algorithms
Sequences and series
Matrices

Unit 2

Simulation and sampling
Trigonometry
Transformations
Vectors
Complex numbers

Unit 3

Complex numbers
Vectors in 2 and 3 dimensions
Trigonometry
Differential and integral calculus
Differential equations

Unit 4

Kinematics
Data analysis
Logic and proof
Vector calculus
Hypothesis testing

Pre-requisites

Students undertaking Units 1 and 2 Specialist Mathematics need to have completed Year 10 Mathematics or Advanced Mathematics (or equivalent). Students must also be concurrently studying (or have completed) Units 1 and 2 Mathematical Methods.

Only those students who have studied Mathematical Methods Units 1 and 2 and Specialist Mathematics Units 1 and 2 are able to study Specialist Mathematics Units 3 and 4. Specialist Mathematics Units 3 and 4 must be studied in conjunction with Mathematical Methods Units 3 and 4.

Assessment

For Units 1 and 2, students complete a range of outcomes and classwork throughout each semester. Specialist Mathematics Units 1 and 2 students complete an examination.

For Units 3 and 4, students complete School-Assessed Coursework (40%) subject to external moderation, and two end-of-year examinations (60%).