



Specialist Mathematics

Note: this is usually offered by Distance Education

Description

Specialist Mathematics Units 1- 4 provide for the study of various mathematical structures, reasoning and proof. It also provides background for advanced studies in mathematics and other STEM fields.

Unit Sequence/Skills Development

Unit 1 - Specialist Mathematics

- Algebra, number and structure (proof and number, graph theory, logic and algorithms)
- Discrete mathematics (Sequences and series, Matrices)

Unit 2 - Specialist Mathematics

- Data analysis, probability and statistics (simulation, sampling and sampling distributions)
- Space and Measurement (Trigonometry, transformations, vectors in a plane)
- Algebra, number and structure (complex numbers)
- Functions, relations and graphs (circular functions, parabolas, ellipses and hyperbolas)

Unit 3 and 4 - Specialist Mathematics

- Discrete Mathematics (logic and proof)
- Functions, relations and graphs (rational functions, quotient functions, curve sketching)
- Algebra, number and structure (complex numbers, including polar form)
- Calculus (differential calculus and integral calculus, differential equations, kinematics: rectilinear motion)
- Space and Measurement (vectors, vector and cartesian equations, vector calculus)
- Data analysis, probability and statistics (distribution of linear combinations, sample mean, confidence intervals)

Possible Assessment Tasks

Assessment tasks for Unit 1 and 2 (CAS calculator required)

Units Assessment tasks for Unit 1 and 2 could include; assignments, tests, solutions to worked questions, summary/review notes, modelling tasks, problem-solving tasks, and mathematical investigations. These will involve the appropriate use of technology. All assessments for Units 1 and 2 are school-based, procedures for assessment of levels of achievement in Units 1 and 2 are a matter for school decision.

Assessment Units 3 and 4 (CAS calculator required)

Unit 3 School-assessed Coursework will contribute 20% to the study score and Unit 4 School- assessed Coursework will contribute 20% to the study score. Level of achievement is also assessed by two end-of-year examinations; Exam 1, 1.0 hour duration, no technology or notes of any kind, and contributes 20% to the study score. Exam 2, 2.0 hours CAS calculator and bound reference permitted, and contributes 40% to the study score. Overall exams contribute 60% of the study score.

Career Options

Unit 3 School-assessed Coursework will contribute 20% to the study score and Unit 4 School- assessed Coursework will contribute 20% to the study score. Level of achievement is also assessed by two end-of-year examinations; Exam 1, 1.0 hour duration, no technology or notes of any kind, and contributes 20% to the study score. Exam 2, 2.0 hours CAS calculator and bound reference permitted, and contributes 40% to the study score. Overall exams contribute 60% of the study score.