THE WORTHGATE SCHOOL
CANTERBURY

COURSE DESCRIPTOR

AS/A LEVEL FURTHER MATHEMATICS

SUBJECT OVERVIEW

Further Maths AS/A Level extends Mathematics A Level. The course covers topics including Proof, Complex numbers, Matrices, Further algebra and functions, Further calculus, Further vectors.

Students also choose one of the following two options:

2A: Further Pure Mathematics 1 and Further Statistics 1

2B: Further Pure Mathematics 1 and Further Mechanics 1

PRIOR LEARNING REQUIRED

Students should have a sound knowledge of IGCSE or equivalent in Mathematics, having gained a grade 7 or above. However, for students who do not have the IGCSE in Maths, it is expected that they sit an entrance test at the start of the year to gain entry onto the Further Maths AS/A Level course.

EXAM BOARD

Edexcel

HIGHER EDUCATION PATHWAYS

All universities would recommend taking it for a Mathematics degree. It is also listed as a desirable subject for many courses such as Physics, Engineering, Statistics, Economics, Finance and Actuarial Science. *AS Further Maths* is frequently preferred for courses in Maths, Finance & STEM.

COMPLEMENTARY SUBJECTS OF STUDY

Physics, Chemistry, Engineering, Statistics, Economics, Business and Finance.

COURSE CONTENT

Year 1	Year 2
Complex Numbers	Complex numbers
Argand Diagrams	Series
Series	Methods in calculus
Roots of polynomials	Volumes of revolution
Volumes of revolution	Polar coordinates
Matrices	Hyperbolic functions
Linear transformations	Methods in differential equations
Proof by Induction	Modelling with differential equations
Vectors	Conic sections (2)
Conic sections (1)	Taylor series
Inequalities	Methods in calculus
The t-formulae	Reducible differential equations
Numerical Methods	
	Either of the two options below, depending upon which one was covered in Year 12:
Students also choose either of the following options:	
	Further Mechanics:
Either	Elastic strings and springs
Further Mechanics:	Elastic collisions in two dimensions
Momentum and impulse	
Work, energy and power	
Elastic collisions in one dimension	OR
	Further Statistics:
	Geometric and negative binomial distributions
OR	Further hypothesis testing
Further Statistics:	Central limit theorem
Discrete random variables	Probability generating functions
Poisson distributions	Quality of tests
Hypothesis testing	
Chi-squared tests	

ASSESSMENTS

Formal internal assessments take place regularly about once every half term and homework is set on a regular basis.
Grades are determined by final examinations.

Assessment	Length of paper	Weighting
A Level Core Pure Mathematics 1	1 hour 30 mins 75 marks	25%
A Level Core Pure Mathematics 2	1 hour 30 mins 75 marks	25%

| Further Pure Mathematics 1 | 1 hour 30 mins
75 marks | 25% |
| A choice of either:-
Further Mechanics 1
Or
Further Statistics 1 | 1 hour 30 mins
75 marks | 25% |

TEXTBOOKS/REVISION GUIDES

Title	ISBN	Author
Core Pure Mathematics Book 1-AS	978 1 292 18333 6 978 1 292 18340 4	Pearson
Further Pure Mathematics 1 FP1	978 1 292 18335 0	Pearson
FURTHER STATISTICS 1 FS1	978 1 292 18337 4	Pearson
FURTHER MECHANICS 1 FM1	978 1 292 18331 2	Pearson

.

HIGHER EDUCATION PATHWAYS
Mathematics opens a large range of career options as, together with other sciences, it is important for technology, research, conservation, resource management, social work, the medical profession, and many fields in finance as well as many other occupations.

COMPLEMENTARY SUBJECTS OF STUDY
Business, Economics, Physics, Psychology.

CURRICULUM DIRECTOR
Mr Scott Graham