St Paul's Catholic School

A LEVEL FURTHER MATHEMATICS

Entry Requirements

Generic A-Level entry requirements, plus Mathematics GCSE grade 7 or above to study A level Maths AND A level Further Maths.

It is not possible to study A level Further Maths without studying A level Maths.

Further Mathematics A level Specifications For first teaching Sept 2017– OCR (MEI)

We do not offer an AS level in Further Mathematics at St Paul's for the new A levels, however, the AS course is exactly identical to the year 12 scheme of study. Currently in Further Maths, we major in Statistics and minor in Mechanics at St. Paul's.

CONTENT AREA	CONTENT OVERVIEW
1 CORE PURE **A level AS level**	**AS and A level:** Some pure topics from AS level Mathematics are studied in greater depth, while some new topics are introduced. Algebraic work with series is extended. The powerful technique of proof by induction is used in various contexts. Complex numbers are introduced, including their geometrical representation. Matrices are used to solve systems of equations and to explore transformations. Scalar products of vectors are applied to problems involving planes. **A level only:** In addition to studying these topics in more depth, learners also applied vector methods to problems involving lines and planes and calculus techniques are extended, including the use of hyperbolic functions and polar coordinates, and culminate in the solution of differential equations.
2 MECHANICS **A level paper** **AS paper**	**Mechanics minor** In this option, basic principles of forces and their moments, work and energy, impulse and momentum and centres of mass are used to model various situations. These include rigid bodies in equilibrium; particles moving under gravity, on a surface, in a circle, attached to springs; bodies colliding with direct or oblique impact.
3 STATISTICS **A level paper** **AS paper**	**Statistics minor** In this option, situations are modelled by discrete random variables; the suitability of models is tested using chi-squared tests. Bivariate data are investigated, with tests for correlation and association and modelling using regression.
4 Modelling with Algorithms	**Modelling with algorithms minor** In this option, what is an Algorithm and the effect of its complexity; Modelling with graphs and networks; Linear programming for finding optimised solutions; the simplex method is applied to a variety of problems.

Assessment of A-Level Further Maths

PAPER	MARKS	DURATION	WEIGHTING
Core Pure Section A – shorter questions with minimal reading and interpretation.	144 raw (180 scaled)	2 hours 40 mins	50%

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Section B – longer questions and more problem solving.				
MINOR OPTION Statistics Major	Gradient of demand across the paper	60 (60 scaled)	1 hour 15 mins each	16 $^{2}/_{3}$%
MINOR OPTION Mechanics Minor	Gradient of demand across the paper.	60 (60 scaled)	1 hour 15 mins each	16 $^{2}/_{3}$%
MINOR OPTION Modelling with algorithms	Gradient of demand across the paper	60 (60 scaled)	1 hour 15 mins each	16 $^{2}/_{3}$%

For Further information, please contact Mr Byrne