



St Paul's Catholic School

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 | <p>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.</p> <p>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.</p> | |
| 2 MECHANICS A level paper AS paper | <p>Mechanics major This A level major option covers the same content as the AS a and b options, assessed at A level standard.</p> | <p>Mechanics a / 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. Mechanics a is assessed at AS level and Mechanics minor at A level.</p> |
| | | <p>Mechanics b In this option, the work from Mechanics a is extended to include oblique impact collisions, circular motion, Hooke's law, centres of mass in the continuous case and variable forces. This unit assumes knowledge of Mechanics a (Y411) and is intended for learners taking AS level Further Mathematics over two years or with the second year of A level Mathematics.</p> |
| 3 STATISTICS A level paper AS paper | <p>Statistics major This A level major option covers the same content as the AS a and b options, assessed at A level standard.</p> | <p>Statistics a / 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. Statistics a is assessed at AS level and Statistics minor at A level.</p> |
| | | <p>Statistics b In this option, the work from Statistics a is extended to include Bayes' theorem, continuous random variables, confidence intervals and some further hypothesis tests, and simulation. This unit assumes knowledge of Statistics a and is intended for learners taking AS level Further Mathematics over two years, or with the second year of A level Mathematics.</p> |

Extract from "Stay ahead of the curve – new linear A levels in Maths and Further Maths" published by OCR & MEI



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Assessment of A-Level Further Maths

| PAPER | | MARKS | DURATION | WEIGHTING |
|--|--|----------------------|---------------------|-------------------|
| Core Pure Section A – shorter questions with minimal reading and interpretation. Section B – longer questions and more problem solving. | | 144 raw (180 scaled) | 2 hours 40 mins | 50% |
| MAJOR OPTION Statistics Major | Section A – shorter questions with minimal reading and interpretation. Section B – longer questions and more problem solving. | 120 raw (120 scaled) | 2 hours 15 mins | $33\frac{1}{3}\%$ |
| MINOR OPTION Mechanics Minor | Gradient of demand across the paper. | 60 (60 scaled) | 1 hour 15 mins each | $16\frac{2}{3}\%$ |

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