

POST 16 SUBJECT OVERVIEW

Name of Subject - Further Mathematics A level

Which Examination Specification is Studied for this Course? AQA Further Mathematics AS (course 7366), and AQA Further Mathematics (course 7367)

Why should I study this course? - Mathematics is essential for many higher education courses and careers. This qualification gives able students the best possible chance to realise their potential in Mathematics at a higher level. Students will see links between different areas of mathematics and will give them scope to apply their skills across all areas of the subject, new and old. Consistent assessments are essential and exam papers are clear and reward students for their mathematical skills and knowledge.

Two thirds of the course is based on a core content of Pure mathematics, which builds on skills from A level mathematics but takes them further and introduces totally new areas of Mathematics, but include general skills in Mathematical argument, language and proof, problem solving and modelling. . For the other third of the course we look at applications of mathematics with more developments in Statistics (Probability distributions, Poisson and exponential distributions and more!), and an area called Discrete mathematics, which looks into graph theory and networks and many modern applications of mathematics. Many of the topic areas in the second year are common topics of first year degree course in mathematics.

Students will enjoy studying a course which will give them a strong foundation for study and support in many other A level subjects. Further Mathematics is known to be probably the hardest A level there is, but also opens up a large range of opportunities for those who have a particular interest in mathematics. The careers and opportunities this can lead to are endless and varied, just as with A level mathematics, but with even more of a boost!

Who is suitable to study this course? -Further Mathematics is suitable for able students who have a flair for mathematics and enjoy the challenge of understanding mathematics at a higher level than followed in A level Mathematics. It gives excellent grounding for students who intend to study mathematics beyond A level. Needless to say you also have to study A level Mathematics!

What GCSE Qualifications Support the Study of this Course? GCSE mathematics (Higher), Further maths, Statistics

What are the Qualification Requirements for this Course? 5 passes, where a pass is defined as GCSE 9-4, BTEC pass at level 2, and we recommend a grade 8 in GCSE Mathematics.

How is the Course Delivered? - You will be taught 5 hours per week, usually by a single teacher.

Pure mathematics: Topics include Proof, Complex numbers, Matrices, Further algebra and functions, Further Calculus, Further Vectors, Polar coordinates, Hyperbolic functions, Differential equations and Numerical methods.

Statistics: Includes Discrete random variables, Expectation, Poisson distribution, Probability errors, Continuous random variables, Chi squared tests, Exponential distribution, the t-distribution, and confidence intervals.

Discrete: includes topics such as, Graph theory and networks, network flows, linear programming, Critical path analysis, Game theory and Binary operations.

Subject Overview		
Half Term	Year 12	Year 13
Autumn 1	Pure	Pure
Autumn 2	Pure / Discrete	Pure / Discrete
Spring 1	Pure / Statistics	Pure / Statistics
Spring 2	Pure / Discrete / Statistics	Pure / Discrete / Statistics
Summer 1	Revision	Revision

Summer 2	AS Examination / Start Y13 work	A level Examination
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How is the Course Assessed?

Assessments are taken every half term through Praising Stars tests, usual on topics recently covered. More extended tests will be conducted in the Summer terms. In Y12, we still enter students for the AS examination, and then the final examination is taken in the Summer of Y13.

Final Y13 A level examination

Paper 1: Pure mathematics (100 marks) - 2 hours

Paper 2: Pure Mathematics (100 marks) - 2 hours

Paper 3: Discrete (50 marks) - 1 hour and Statistics (50 marks) - 1 hour

What is our Recommended Subject Reading list to Support your Study?

You will be issued with a text book upon enrolment-

Oxford - AQA A level Further Maths Year 1 / AS level, and then in Y13 AQA A level Further Maths Year 2 / A level.

During the course you will be introduced to various web sites to support your learning, one of which is a dedicated website for students studying Further Maths www.integralmaths.org