A-Level Mathematics

EXAM BOARD: Edexcel

What does the course cover?

During this course you will learn to extend your knowledge of algebra and geometry from GCSE and explore the ways in which mathematics can be applied in the real world. Areas which you will cover include:

- New topics such as coordinate geometry, series, differentiation and integration, all of which are highly algebraic and are an excellent introduction to maths at a higher level.
- Branching further into core maths with topics such as logarithms and exponentials, radian measures and higher level trigonometry.
- More complex pure maths including trigonometric proofs, further differentiation and integration as well as numerical methods for finding solutions.
- Further and more complex work on coordinate geometry as well as vectors in 3D. Lots of the maths studied in earlier core modules is linked together here.
- Mechanics and Statistics: this applied paper introduces students to mathematical modelling of everyday experiences, like driving a car, throwing a ball up in the air, walking across a bridge and playing snooker. In order to be successful in this area you need to be able to visualise a situation and simplify the forces acting on different parts of it. You will have a better understanding of how the physical world operates and how to use maths to predict what will happen next following this module. Using statistics, you will also get to: Interpret measures of central tendency and variation, extending to standard deviation, understand and use simple, discrete probability distributions (calculation of mean and variance of discrete random variables is excluded), including the binomial distribution, as a model, calculating probabilities using the binomial distribution and use the Normal distribution as a model, finding probabilities using the Normal distribution.

What skills will the course help you develop?

- Fluency in the key mathematics topics for science and engineering
- Organising and presenting a structured and logical argument
- Confidence in mastering challenging ideas and overcoming difficulties
- Thinking in an abstract and symbolic way

How is the course assessed?

The course is assessed through exams only with 3 exams taken for a full A-Level at the end of the 2 year course. Paper 1 and 2 are equally spread over all Pure mathematics with Paper 3 being the applied Mechanics and Statistics module. Each paper is worth 100 marks and a 2 hour exam.

What are the entry requirements?

Maths is known as a tough A-Level. The Pure modules start at 7/9 GCSE level and goes upwards. For this reason a Grade 7 at GCSE is essential and a Grade 8/9 is advised.

What do students who study this course go on to do?

Maths is essential for studying Maths, Physics or Engineering at University, and for these subjects Further Maths is highly desirable or even essential at the top institutions (see page on Further Mathematics). Other courses which benefit from Maths A-Level are medicine, economics, accounting and other sciences such as sports science.

Who is the staff contact for Mathematics?
Mrs Nash with Mr Hollindale, Mrs Holding, Miss Le Brun, Miss Filgate and Miss Stone.