Mathematics A Level

Course Overview:

Pure Mathematics

In Year 12, Pure Mathematics content further develops key topics studied at GCSE, such as algebra, trigonometry and graphs, developing deeper understanding through the application to advanced problems. You will meet and use Calculus; the Mathematics that Newton and others used to describe the motion of the planets and the world around us. You will also have met the mathematical number e, and developed your understanding of powers by looking at the new topic of logarithms. In Year 13, you further develop the algebra, trigonometry and calculus studied in Year 12, embedding the skills already learned. In trigonometry there are a greater range of identities, and an increased emphasis on constructing proof. The techniques used in Calculus are more advanced and modulus is included in the functions studied. Vectors, partial fractions and numerical methods are topics studied for the first time.

Applied Mathematics

All Mathematics A Level courses now have compulsory elements of both Statistics and Mechanics. Statistics is the science of learning about the real world from the wealth of data available, using statistical theory to make judgements about the validity and implications of results. Statistics enables advances to be made in the Sciences such as medicine and genetics, and contributes to decision making in business and public policy. This course covers the basics of statistics for higher level study in many fields and includes using spreadsheets to analyse a large data set. Mechanics is the mathematical study of concepts such as force, motion, equilibrium and momentum. It is about the mathematical model used in analysing the forces of nature, with Newton's laws of motion taken as its foundation. It gives a mathematical explanation for the situations that occur in real life, whether concerning friction acting on a particle to prevent it moving, or the impulse given to a cricket ball. This course covers the fundamentals of mechanics and the assumptions made in mathematical modelling.

Assessment:

There are three x 2 hour papers at the end of the two year course. These consist of two Pure Mathematics papers and one Applied Mathematics paper (comprising Mechanics and Statistics).

Why would this course suit me?

A Level Mathematics is an excellent foundation both for further study and employment. It is considered to demonstrate core intelligence, a logical mind and excellent problem-solving skills. For this reason it is exceedingly well regarded by employers and Universities alike. Mathematics is a subject respected and desired by Universities. The Russell Group of Universities name Mathematics among its list of 'facilitating subjects'.

How does this course link to other subjects?

Other subjects complement the study of Mathematics, including:; Physics, Chemistry, Biology, Economics, Business Studies, Geography and Computer Science. Other subjects that are linked aesthetically and practically include Art, Design, Music and Psychology.

Examination Board:
Edexcel

Entry Requirements:
Grade 7 or above in Mathematics

Potential Career Opportunities:

The study of Mathematics can lead into a wide variety areas of study at University and is considered desirable for a wide range of courses.

Students who study Mathematics go into a wide range of careers, including Engineering, Architecture, Scientific Research, Computer Programming, Weather Forecasting, Teaching, Design and Economics.