

A level Mathematics

Overview:

Exam Board: Edexcel

A level Mathematics is the most popular of all A levels taken in England. Young people recognise that it's a highly desirable qualification that can help them achieve their aspirations for further study and their future career.

Studying A level Mathematics helps students develop a logical approach to problem solving, as well as developing their mathematical knowledge and skills, so it's valuable preparation for a wide range of degree courses.

For many STEM and economics degree courses, A level Mathematics is an essential pre-requisite. For others, such as geography and finance, studying A level Mathematics is very useful, as it helps to keep students' mathematical skills fresh, and it prepares them for the maths they'll encounter during the course.

Content:

The course comprises **pure mathematics** (two-thirds), **statistics** (one sixth) and **mechanics** (one sixth).

Pure Mathematics

Builds on and develops the algebraic and trigonometric techniques students have learnt at GCSE so that they acquire the fluency required for advanced work, and introduces students to a number of topics fundamental to the advanced study of mathematics, such as calculus.

Topics in Y12:

- Modelling and Proof
- Algebra
- Polynomials
- Binomial expansion
- Co-ordinate Geometry
- Transformations of Curves
- Sequences and Series
- Exponentials and Logarithms
- Trigonometry
- Differentiation
- Integration
- Numerical Methods
- Vectors

Statistics

Enables students to build on and extend the data handling and sampling techniques they have learnt at GCSE. They will apply theoretical knowledge to practical situations using simple probability models, and extend their ability to represent data in bivariate situations, with an emphasis on linear and rank order modelling, and associated hypothesis testing.

Topics in Y12:

- Statistical Sampling
- Data Presentation and Interpretation

- Probability
- Statistical Distributions
- Hypothesis Testing

Mechanics

Introduces students to mathematical modelling and to the basic concepts in kinematics, statics and dynamics. They will then develop and extend the range of mechanical concepts which they are able to use in modelling situations.

Topics:

- Quantities and Units
- Kinematics
- Forces and Newton's Laws
- Moments
- Key Skills

Entry Requirements:

Normal entry requirements with GCSE Mathematics at grade 6 or above.

A good understanding of all GCSE Algebra topics is expected.

How Assessed:

Three exams at the end of Y13:

Paper 1 (100 marks, 2 hours) is **pure mathematics**, and can assess any Y12 and Y13 pure content.

Paper 2 (100 marks, 2 hours) is also **pure mathematics**, and again assesses Y12 and Y13 pure content.

Paper 3 (100 marks, 2 hours) is **statistics and mechanics** (50 marks each) on all Y12 and Y13 content.

There is no coursework.

Progression:

In addition to being essential for studying Mathematics at university, A-Level Mathematics is often necessary to gain admission to other university courses, such as Accounts, Economics, Financial Management, Medicine and the sciences. It can also be a preferred A-level in almost any BSc subject, including Geography, Sociology and Psychology.