

Mathematics

Exam board: Edexcel

Summary of unit content

AS Level

Unit	Summary of content	Weighting of AS Level
Core 1 (C1)	Indices and surds; quadratic functions; equations and inequalities; curve sketching and coordinate geometry in the (x,y) plane; sequences and series; basic differentiation and integration.	33.3%
Core 2 (C2)	Algebraic fractions, division and the Remainder Theorem; trigonometry; exponentials and logarithms; coordinate geometry in the (x,y) plane; the Binomial expansion; geometric sequences and series; calculus.	33.3%
Decision 1 (D1)	Transportation problems; allocation (assignment) problems; the travelling salesman; game theory; further linear programming; dynamic programming; flows in networks	33.3%

A2 Level

Unit	Summary of content	Weighting of A2 Level
Mechanics 1 (M1)	Applying maths to real-world problems (including many cross-overs with Physics). Mathematical models; vectors; kinematics and dynamics of a particle moving in a straight line; statics of a particle; moments.	33.3%
Core 3 (C3)	Algebraic fractions; functions; exponentials and logarithms; numerical methods; transforming graphs and the modulus function; trigonometric identities and their applications; further differentiation.	33.3%
Core 4 (C4)	Partial fractions; coordinate geometry using parametric equations; the Binomial expansion; advanced differentiation and integration; vectors	33.3%

Each module (or unit) is examined by a one and a half hour exam, all of which are sat in the summer of which both AS and A2 Level years.

C1 is a non-calculator examination, for all other units a calculator may be used.

Recommended is the Casio Fx-991ES Plus; the most powerful calculator permitted by the exam board AS and A2 Level carry equal weighting towards the full A Level.

There is no coursework as part of this course.

Regular assessments and use of ResultsPlus and question level Analysis throughout the course ensure students and teachers alike are able to chart student progress and intervene when necessary.

What skills do I need to do well?

Some students are fortunate to have a natural aptitude for mathematics. Most students who study maths at A level are mathematically able but still have to work hard to grasp some of the more demanding concepts. The students who do well at maths A level are those who are willing to persevere when things get difficult and studious enough to independently seek out help.

Who is the course for?

For students who can rise to the challenge of solving a mathematical problem and enjoy the satisfaction of getting it right. One of the most important qualities of a good mathematician is the desire to persevere until a problem is solved. Sometimes the answers come quickly and easily. At other times you will need to try various routes and techniques before 'cracking' it, but it's a great feeling when you do!

Mathematics is a highly regarded A level subject, by employers and universities alike. A recent statistical survey shows that people with A level mathematics earn about 10% more than the rest of the population! (This percentage greatly increases for those who take maths further). Mathematics forms a part of many university courses even if you are not studying the subject itself.

An A level in mathematics provides an excellent foundation to a wide range of courses in higher education. As there is no essay work involved in mathematics at A level, the time that you spend thinking through problems can be quite refreshing, especially if you are studying other subjects, which have a high content of written work.

Comments from students who have studied this subject in the past

"I chose A Level Maths because it opens a lot of doors into a large variety of different careers, such as Accounting, Computer Programming, and Aerospace Engineering. It helps to develop your ability, to solve problems in the wider world". **Cameron Brace, Year 13**

"Although at times A Level Maths is very challenging, the teachers have always supported me right until the end, leaving me with the feeling that I'm able to succeed". **Laila Shaban, Year 13**

Frequently asked questions

What GCSE grades do I need for Mathematics AS or A level?

Students who study mathematics at A level achieve a grade B or above at GCSE and will have followed the higher course. Being one of the most challenging subjects you can study at A Level (but equally one of the most rewarding and highly regarded), only students who are hard-working, well organised, and above all, determined to succeed, should consider the course. Students currently predicted a B grade must attend the Access to A Level course in Year 11. All students wishing to enrol on the course complete a Summer Bridging Project (half written, half online) in their own time (Jul/Aug) and a Pre-requisite Assessment in September of Year 12, both of which are designed to ensure that the students have the necessary attitude and skills to succeed, and that they have chosen the right course.

What resources are available?

At Chauncy, we follow the Edexcel syllabus. Fortunately for us, the exam board produces a series of books written especially for this course. Banks of past papers and past exam questions will be made available (including electronically), in order to ensure full preparation for the modular exams.

In addition, there is a host of online support for students such as Physics and Maths Tutor, podcasts on Khan Academy, MyMaths lessons and Autograph software.

I Rooke, Head of Maths