

Mathematics

Course Specification - OCR Mathematics: AS 3890 and A-Level (A2) 7890

([Link to OCR Mathematics Specification](#)).

The Structure of the AS/ A2 Mathematics Course

The OCR Mathematics AS/ A level course is a modular course, consisting of three units for an AS award and a further three units to form the A level award.

AS Mathematics will be available as a one-year course and consists entirely of units assessed at AS standard. This is aimed primarily at students who wish to do some mathematics in the Sixth Form, but do not wish to do a full A-level. This is particularly useful for students who will be using mathematics in their other subjects. It will also form the first half of the course for A-level Mathematics students.

The mathematics studied at AS and A Level falls into two categories – Pure Mathematics (called the Core modules) and Applied Mathematics. Pure Mathematics is the study of abstract topics such as geometry, algebra, trigonometry, functions and calculus. Applied Mathematics relates the knowledge and skills learned in Pure Mathematics to real life situations in Mechanics and Statistics: Mechanics is the study of forces and moving objects; Statistics is the study of probability and the analysis of data. There are 17 modules available in the mathematics syllabuses. Some modules are designated AS modules, and some are designated A2 modules.

Form of Assessment/Examination

Each module has an examination length of 1 hour 30 minutes.

All students will take the examinations in Pure Mathematics and Applied Mathematics in January and June of Year 12 and Year 13. This encourages students to work consistently throughout both years in the Sixth Form. A module may be repeated at a later sitting to obtain an improved score.

The more usual distribution of modules is:

Year 12	- Core 1, Core 2 and Statistics 1
Year 13	- Core 3, Core 4 and Mechanics 1

Students who leave the course at the end of Year 12 will qualify for a grade in AS Mathematics.

Coursework

There is no coursework element in any of the modules.

Calculators

Core 1 is entirely non-calculator. In all other modules, scientific or graphical calculators are allowed. Boys are encouraged to obtain and use a graphical calculator (Casio fx-9750G PLUS) but this should be ordered through the School after consultation with the relevant members of staff.

The Standard of Work

Mathematics at A level is harder but more stimulating than mathematics at GCSE level. Students will be challenged and will need to be interested and determined to succeed. It will appeal particularly to those who enjoyed, and had a flair for, the more abstract topics of algebra and geometry. Learning and hard work cannot be avoided at A level and it is important to start straight away at the beginning of Year 12. In Mathematics the main emphasis is on learning techniques and skills, understanding concepts and applying these to solving problems.

Academic Requirements

Mathematics does change considerably from GCSE to A level and past experience has shown that, for a student to do well at A level, he ought to have gained an A or A* at GCSE and be thoroughly confident with algebraic techniques. Anyone who is not expected to get an A grade or better at GCSE is advised to seek a stronger alternative unless there are exceptional circumstances. If at the moment you find that success in the subject is only achieved with difficulty and the algebra is an immense mystery then you should think long and hard before committing yourself to the A level course.

Why do Mathematics?

There are three main reasons for taking Mathematics at Advanced Level. The first, and best, is that you have an interest in it, and wish to pursue your knowledge of it beyond GCSE. The second is that you need it as one of your A levels for a university course which you hope to study, or for a career which you hope to follow. The third is that you have done well at GCSE Mathematics, enjoy problem solving and feel confident about obtaining a good grade at A level.

Mathematics at A level is highly regarded by University admissions tutors of all disciplines and, as such, is a useful subject to study, either as part of a science-based set of subjects or to broaden an arts or humanities package. Students who have studied Mathematics will acquire skills and knowledge that can be applied in many fields. In addition to the acquisition of mathematical skills, students will develop their powers of reason and logic, and their communication skills. Because these skills are transferable, the worth of having studied Mathematics is universally recognised.

You need Mathematics if you are considering a career in Physics or Engineering. It would also prove to be useful (and sometimes essential) if you intend to go on to do other science courses, banking, business studies or economics. If you are not sure, find out before choosing your A level courses.