



# AS-level Further Mathematics

Board and Specification: **Edexcel AS further Mathematics**

Staff: **Mr Simon Reid (KS5 Coordinator)**

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## Subject specific entry requirements:

- Grade 7 in GCSE Mathematics.
- Further Mathematics is aimed at students who are both strong mathematicians and show a real passion for the subject.
- Students should be fluent in both their algebraic skills and trigonometry skills from GCSE.
- Suitable candidates for the course are those who enjoy working independently to solve complex mathematical problems.
- Before starting the course, students will have completed the AS-level Further Mathematics induction booklet.

## What skills are required of students?

Independent learning of definitions and reaction mechanisms and understanding some of the concepts introduced during the course.

## Modules titles and codes:

- **8MA0/01 Paper 1:** Further Pure Mathematics 1
- **8FM0/2A-2D Paper 2:** Further Mathematics Option 2 (**One** paper is selected from either 2A: Further Pure Mathematics 2, 2B: Further Statistics, 2C: Further Mechanics or 2D: Decision Mathematics.

Both papers are equally weighted and they are examined in the summer, 2020.

### **8FM0/01: Further Pure Mathematics 1**

Proof, complex numbers, matrices, further algebra and functions, further calculus, further vectors

Linear regression

Statistical distributions (discrete)

Statistical distributions (continuous)

Correlation

Hypothesis testing

Chi squared tests

### **8FM0/2A: Further Pure Mechanics 2**

Complex numbers

Further algebra and functions

Further calculus

Polar co-ordinates

Hyperbolic functions

Differential equations

### **8FM0/2D: Decision Mathematics**

Algorithms and graph theory

Algorithms on graphs

Algorithms on graphs II

Critical path analysis

Linear programming

### **8FM0/2B: Further Statistics**

### **What kinds of work will you do in class and at home?**

Home learning tasks could involve embedding the learning from the lesson using questions from text books or worksheets from alternative resources or from past papers. Tasks could also involve pre-reading or revision in preparation for a test or research into a topic. On occasion, students may be asked to prepare a task or an activity that will be used in a subsequent lesson.

The content of the AS Further Mathematics course is delivered over 1 year in lessons and through home learning tasks with examinations being sat at the end of Year 12. Students will be assessed regularly to track progress. They will need a Casio FX-991 EX as part of their studies.

### **What other A-levels does your subject connect well with?**

Psychology, Geography, Physics, Chemistry, Biology, Business and Computing.  
In some instances, there is a direct overlap in the contents such as with forces, studied in Physics A-Level and statistical testing which features in Psychology A-level.

### **What types of university course will be helped by this AS-level?**

There are many university courses that require mathematics at A-level including: actuarial studies, engineering, chemical engineering, computing, dentistry, environmental and earth sciences, economics, electronic engineering, pharmacy, physics and of course mathematics and statistics.

Some courses require two or three A-levels from a selection of say 4 subjects of which Mathematics A-level is often an option e.g. Geology or Medical Sciences. For many courses, even though A-level Mathematics is not a prerequisite, it is considered to be very useful and AS Further Mathematics is a qualification very much sought after by universities offering a degree in mathematics or engineering.

Demand for jobs with Science, Engineering and Technology skills is increasing enormously and these jobs require maths skills. Highly numerate disciplines are in great demand from employers and young people with maths qualifications and degrees will find that their degrees can open doors to exciting and rewarding careers.