

# Further Mathematics

**Exam board:** Edexcel

## **Entry requirements:**

Level 7 or above in GCSE Mathematics.

You must also have opted to study A-level Mathematics.

## **Course content:**

Compulsory content: Proof; Complex Numbers; Matrices; Further Algebra and Functions; Further Calculus; Further Vectors; Polar Coordinates; Hyperbolic Functions; Differential Equations; Trigonometry; Coordinate Geometry.

In addition to the compulsory content, students will study two of the following options:

1. Mechanics (dimensional analysis; momentum; energy and power; circular motion; mass and moments).
2. Statistics (discrete random variables; Poisson distribution; type 1 and type 2 errors; continuous random variables; chi tests; exponential distribution).
3. Discrete (graphs; networks; linear programming; critical path analysis; game theory; binary operation).

## **Assessment:**

Paper 1 –33% of the A-level. Any content from the compulsory content.

Paper 2 –33% of the A-level. Any content from the compulsory content.

Paper 3 –33% of the A-level. Any content from the two chosen options.

### **Why choose Further Mathematics:**

If you are planning to take a degree such as Engineering, Sciences, Computing, Finance/Economics, etc., or perhaps Mathematics itself, you will benefit enormously from taking Further Mathematics, at least to AS level. AS Further Mathematics introduces new topics such as matrices and complex numbers that are vital in many STEM degrees. Students who have studied Further Mathematics find the transition to such degrees far more straightforward. Studying Further Mathematics also consolidates and reinforces your standard A-level Mathematics work, helping you to achieve your best possible grades in A-level Mathematics.

Students who are considering applying for Oxford or Cambridge may also benefit from studying Further Mathematics as it will help your application to stand out.

### **Skills and progression:**

Further Mathematics will provide you with skills that extend and deepen your knowledge and understanding beyond the standard A-level Mathematics course. Further Mathematics qualifications are highly regarded and are warmly welcomed by universities and employers. The following degree courses, and therefore careers, list A-level Further Mathematics as useful:

Actuarial science, aeronautical engineering, biochemistry, biomedical sciences, chemical engineering, chemistry, civil engineering, computer science, dentistry, electrical engineering, general engineering, law, materials science, mathematics, mechanical engineering, medicine, optometry, physics and veterinary science.