

## ADVANCED GCE FURTHER MATHEMATICS

**EXAMINING BOARD: AQA**

### Minimum Entry requirements:

GCSE Mathematics Grade 8 (Grade 7 will be considered after meeting with Curriculum Team Leader)

### KEY FEATURES OF THE COURSE:

- Linear Assessment
- Studies of Pure Core Mathematics as well as a choice of 2 of Discrete, Mechanics and Statistics
- Students will sit exams at the end of Year 12 to assess suitability for Year 13 and to help decided which of the applied modules to sit in Year 13.
- If students continue into Year 13, they will sit 3 exams at the end of the year and this will make up the full A Level

### CONTENT COVERED IN YEAR 12

#### Pure Maths

B: Complex numbers

C: Matrices

D: Further Algebra and Functions

E: Further Calculus

F: Further Vectors

G: Polar Coordinates

H: Hyperbolic Functions

L: Coordinate Geometry

#### Mechanics

A: Dimensional analysis

B: Momentum and collisions

C: Work, energy and power

D: Circular Motion

#### Statistics

A: Discrete Random Variables  
and Expectation

B: Poisson Distribution

C: Type I and Type II Errors

D: Continuous Random Variables

E: Chi tests for association

#### Discrete

A: Graphs

B: Networks

C: Network Flows

D: Linear Programming

E: Critical Path Analysis

F: Game Theory

G: Binary Operations

## CONTENT COVERED IN YEAR 13

### Pure Maths

A: Proof  
B: Complex numbers  
C: Matrices  
D: Further Algebra and Functions  
E: Further Calculus  
F: Further Vectors  
G: Polar Coordinates  
H: Hyperbolic Functions  
I: Differential Equations  
J: Trigonometry  
L: Coordinate Geometry

### Mechanics

A: Dimensional analysis  
B: Momentum and collisions  
C: Work, energy and power  
D: Circular Motion  
E: Centres of Mass and Moments

### Statistics

A: Discrete Random Variables and Expectation  
B: Poisson Distribution  
C: Type I and Type II Errors  
D: Continuous Random Variables  
E: Chi tests for association  
F: Exponential Distribution  
G: Inference – one sample t-distribution

### Discrete

A: Graphs  
B: Networks  
C: Network Flows  
D: Linear Programming  
E: Critical Path Analysis  
F: Game Theory  
G: Binary Operations and Group Theory

## TYPE OF ASSESSMENT IN YEAR 13

Paper 1 - 2 hours – 100% will be Pure Maths.

Paper 2 – 2 hours – 50% Pure Maths and 50% Mechanics

Paper 3 – 2 hours – 50% Pure Maths and 50% Statistics

### Studying Mathematics will:

- Provide a stimulating and challenging course;
- Develop key employability skills such as problem-solving, logical reasoning, communication and resilience;
- Increase knowledge and understanding of mathematical techniques and their applications;
- Support the study of other A level subjects;
- Provide excellent preparation for a wide range of university courses;
- Lead to a versatile qualification that is well-respected by employers and higher education.