Mathematics

STUDY LEVEL	CONTACT DETAILS
A level	**Michael Griffiths, Head of Department** griffiths_m@sjd.ac.uk

A level Mathematics is essential for a number of future destinations and opens up a wide range of career paths including engineering, economics, medicine, technology or science. The course will challenge your problem solving abilities and will develop your skills to think logically.

What will I study?

The Mathematics A level has two-thirds of content looking at pure mathematics, one-sixth looking at mechanics and one-sixth looking at statistics. Students will sit three papers at the end of their second year, each lasting for two hours.

Please be assured, the step up from GCSE to A level is not as steep as some people would have you believe, and we within the maths department will make sure you have the support and guidance necessary to be successful with this transition.

Co-curricular activities?

As part of our commitment to ensuring students enjoy the challenges that studying mathematics brings, we arrange a number of activities throughout the year to enrich your experience.

These include attending problem-solving days at local universities, entering a range of individual and team challenges both locally and nationally and attending residential sessions at local universities with a view to undergraduate study of Mathematics.

Students will also have the opportunity to enter and be supported with preparing for a number of examinations that are required for university entry, such as STEP, MAT, BMAT or AEA.

Where might it lead?

Studying Mathematics is challenging, rewarding and stimulating and helps to develop the problem solving and reasoning skills that are so highly valued by employers.

There is an increasing demand (and pay) from universities and employers with maths skills and there are an increasing number of careers using mathematics explicitly. These include: logistics (shipping Amazon orders efficiently), marketing, science, engineering, technology, financial services, game design and statistics (including analysing 'Big Data').

Course Breakdown

Course Summary

• Exam board is Edexcel

Paper	Content	Marks	Duration	Weighting
Paper 1	Pure Mathematics	100	2 hours	33.3%
Paper 2	Pure Mathematics	100	2 hours	33.3%
Paper 3	Mechanics and Statistics	100	2 hours	33.3%

Summary of Content

Pure Mathematics

Proof; Algebra and Functions; Coordinate Geometry; Sequences and Series; Trigonometry; Exponentials and Logarithms; Differentiation; Integration; Numerical Methods.

Mechanics

Vectors; Quantities and Units in Mechanics; Kinematics; Forces; Newton's Laws; Moments

Statistics

Statistical Sampling; Data presentation and Interpretation; Probability; Statistical Distributions; Hypothesis Testing

Suggested Preparation for September

Students need to be confident in applying Higher Level GCSE techniques, in particular:

• Manipulating surds and indices.

• Solving linear equations.

• Solving quadratic equations: by factorising, using the formula and completing the square.

• Solving simultaneous equations by elimination and substitution.

Students should review these topics and practise questions on them using GCSE revision guides/the internet.

Students will need to purchase a **CASIO fx-991 EX (ClassWiz)** scientific calculator. Other calculators are unfortunately not suitable. This is a new calculator designed for the new specification and includes statistical functions that are not present on other scientific calculators.