

# Further Maths A Level



Exam Board: Edexcel

## Why A Level Further Maths?

Further Maths is arguably the most challenging A-Level course in this country, and is designed for students with elite mathematical abilities. In addition to ability, the ideal candidates possess an incredible work ethic. Working towards a Further Maths A-level often boosts students' marks in the standard Maths A-level due to the additional time attributed to studying mathematics. In addition, Further Maths equips students with essential, advanced mathematical skills required for the first year of maths-related degrees, which is why universities often favour this particular qualification. Students wishing to attend university will benefit greatly from this course; it requires a large proportion of independent study and dedication.

## Thinking and Life Skills you will develop:

- By studying Further Maths at an advanced level, students are presented with the opportunity to strengthen their logical reasoning and problem solving abilities.
- Such skills are transferable to all subjects; the ability to solve abstract problems consisting of numerous parameters and variables is what makes good mathematicians so employable.

## What will you study?

Alderbrook offers the Further Maths A Level (Edexcel specification). This course is designed for elite mathematicians and covers several aspects of maths that are taught at University level, such as matrices and differential equations.

The course is a combination of compulsory Further Pure Mathematics components and optional components from Further Statistics, Decision and Further Mechanics.

## University degrees that require or often prefer Mathematics include:

Computer Science, Engineering, Accounting, Economics, Architecture, Actuarial Mathematics, Physics, Biology, Chemistry, Sports Science.

## Possible careers:

Medicine, science, actuary, architecture, game designers, engineering, IT and computing, automotive, biosciences, financial services.

## Entry requirements:

At least a Grade 8 in GCSE Maths (GCSE in AQA Level 2 Further Mathematics preferable) and to be also studying A Level Maths.

$$y^2 (x+c)^2 + y^2 = 4a - 4a\sqrt{(x-c)^2 + y^2}$$

$$\lim_{x \rightarrow 0} \left( \frac{1}{x} - \frac{1}{e^x - 1} \right) = \lim_{x \rightarrow 0} \frac{e^x - 1}{x(e^x - 1)}$$

$$y' = (\ln u)' (\sin x)' = \frac{1}{u} \cos x = \frac{\cos}{\sin}$$

$$\int_a^b f(x) dx = \lim_{\lambda \rightarrow 0} \int_a^b f(x) dx + \lim_{\mu \rightarrow 0} \int_{c+\mu}^b f(x) dx$$

$$\lim_{x \rightarrow 0} \frac{4x}{\tan(\pi(2+x))} = \left\{ \frac{0}{0} \right\}$$

$$a \sum_{i=1}^n x_i^2 + b \sum_{i=1}^n x_i = \sum_{i=1}^n x_i^2$$



*'A problem worthy of attack proves its worth by fighting back.'*  
Piet Hein