



A Level Further Maths

Why study FURTHER MATHEMATICS?

Further Mathematics is a challenging qualification for the keen mathematician that extends knowledge and understanding beyond the standard of the A Level Mathematics course. Further Mathematics runs alongside the single A Level Mathematics course and those who study it find that the additional time spent studying mathematics boosts their marks in A Level Mathematics.

What is the course structure?

Exam Board: Edexcel

A Level

Four exams papers are taken for an award in A level Further Mathematics. Papers 1 and 2 assess pure Mathematics while paper 3 and 4 assesses the applied units. All examination papers are equally weighted and last 1.5 hours. Calculator usage is allowed in all four papers.

Overview of content of A level papers:

Paper 1

Proof, Complex Numbers, Matrices, Further algebra and functions, Further calculus, Further vectors

Paper 2

Complex numbers, Further algebra and functions, Further calculus, Polar coordinates, Hyperbolic functions, Differential equations

Papers 3

Further Statistics 1 - Linear regression, Statistical distributions (discrete), Statistical distributions (continuous), Correlation, Hypothesis testing, Chi squared tests

Paper 4

Decision Mathematics 1 - Algorithms and graph theory, Algorithms on graphs, Algorithms on graphs II, Critical path analysis, Linear programming

Which activities will I be engaged in during the course?

As with the single Mathematics A-Level, the kind of learning habits you might be asked to draw upon include:

- Organising your notes and using effective revision strategies to learn facts, terminology and procedures
- Independently reading up on prior knowledge and new theories
- Self-evaluating your understanding and misconceptions within a topic and taking actions to address any shortfall.
- Thinking and communicating with clarity using subject specific vocabulary.
- Constructing rigorous mathematical arguments (including proofs)
- Questioning, posing problems and investigating new ideas
- Translating problems in mathematical and non-mathematical contexts into mathematical processes.
- Developing creative ways to solve problems by being thoughtful, calm and strategic.

How can I prepare for the course?

To prepare for your Further Maths studies you will need to keep your existing maths skills fresh so that you can 'hit the ground running' in September. You also need to get into the habit of reading around subjects in advance of lessons, and so you should use induction and the summer as an opportunity to gain an insight into the topic areas you will meet in Further Maths.

Some suggested wider reading links:

Functions:

<http://www.themathpage.com/aprecalc/functions.htm>

Angle measure:

<http://www.jamestanton.com/?p=633> and

<http://qedinsight.wordpress.com/2011/03/14/why-radian-measure-makes-life-easier-in-mathematics-and-physics/>

Rational and irrational numbers :

<http://www.themathpage.com/aprecalc/rational-irrational-numbers.htm>

Calculus:

<http://www.youtube.com/watch?v=Idra8rVS1I>

Decision 1:

<http://www.ucl.ac.uk/~ucahbtw/docs/d1lesson3/Routelnspection.pdf>