AS Core Mathematics: AQA Mathematical Studies Level 3

Course Description:

The AQA Mathematical Studies Level 3 course builds on work met at GCSE and extends to a greater depth topics such as maths for personal finance, data analysis using statistics, probability, as well as introducing new ideas and powerful techniques for solving problems, for example Critical Path Analysis. The course is primarily focussed on the application of mathematics in everyday life. The delivery of the course is similar to GCSE, but due to the smaller group sizes and shared interest there is much more discussion and interaction between the students.

The Mathematics Studies course consists of three main areas: Pure Mathematics, Statistics and Decision Mathematics. Consequently, Core Mathematics is useful for students studying the sciences, Physics, Chemistry, Biology and considering a career in engineering, as well as the social sciences, Geography, Business Studies or Psychology. However, Core Mathematics can be usefully combined with any level 3 course.

Qualifications Required:

Minimum entry requirements apply. Grade 5 in GCSE Maths. You should have an enjoyment of the subject. In particular, it would be helpful to be reasonably confident with the problem solving aspect of the GCSE course. **This is a one year course so students will need to take this in addition to their other 3 A Level subjects.**

Aims of the Course:

- To develop your understanding of mathematics and mathematical processes in relation to data analysis
- To develop your ability to reason logically, to generalise, to construct and produce clear and concise solutions to questions
- To extend your range of mathematical skills and techniques and use them in more practical and real world problems
- To understand a problem solving cycle includes specifying the problem, collecting information, processing and representing information and interpreting results, which may identify the need to refine the solution
- To develop an understanding of coherence and progression in mathematics and how apparently different areas of mathematics are connected at a deeper level
- To recognise how a situation may be represented mathematically and understand the relationship between 'real world' problems and standard and other mathematical models and how these can be refined and improved
- To read and comprehend written mathematics and use mathematics as an effective means of communication
- To show perseverance in answering challenging problems which may require several visitations before a solution is found
- To develop an awareness of the relevance of mathematics to other fields of study, to the world of work and to society in general

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Future Prospects:

You can progress on to: Degrees with some mathematical content such as accountancy and a wide range of careers which require a numerate background.

Student Feedback:

This course has been running since September 2018. Students find it very useful and practical.

Features of the Course:

- Plan and interpret information from different sources
- Carry out multi-stage calculations and be able to form extended lines of reasoning
- Present findings, explain results and justify choice of methods
- Spiritual, moral, ethical social and cultural issues relating to mathematics

Compulsory Content	Optional Content
Data Analysis 1	**Data Analysis 2**
Data Analysis.	**Statistical Techniques**
Maths for Personal Finance	The Normal distribution
Estimation	Probabilities and Estimation
Critical Analysis of Given Data and Models	Correlation and Regression
	or
	Critical Path and Risk Analysis
	Critical Path and Risk Analysis
	Expectation
	Cost Benefit Analysis
	or
	Graphical Techniques
	Graphical Methods
	Rates of Change
	Exponential functions

Methods of Assessment:

This is an AS course which will take one year to complete. There are two papers at the end of Year 12, consisting of compulsory content and optional content of data analysis, assessed by two 1½ hour written papers (60 marks each).