# POST 16 SUBJECT OVERVIEW

**Name of Subject** – Core mathematics – Quantitative reasoning and problem solving

**Which Examination Specification is Studied for this Course** – Level 3 certificate – Quantitative reasoning (MEI) OCR

**Why should I study this course** - This qualification gives learners the mathematical skills to tackle problems in a variety of authentic situations. It enables learners to strengthen the mathematical knowledge and skills which they have learnt at GCSE so that they can apply them to the problems which they will encounter in further study, life and employment.
The use of technology – in particular, spreadsheets – is an integral part of the course. Using mathematics creatively to address authentic problems, communicating, thinking clearly and evaluating quantitative statements are features of this qualification. The ability to reason confidently using quantitative information and to check the accuracy of statements made by others is important for all future study and employment as well as for effective participation in everyday life.

**Who is suitable to study this course?**

Any student with a passion for developing their knowledge whilst deepening their understanding in mathematics.
Students must be committed to their studies as this course requires dedication and a strong work ethic.
If you would like to continue studying maths at KS5 but have been working on foundation at GCSE level 3 Core Mathematics would be a great option for you.
This course will also support you if you are taking an A-Level course with a high level of statistics and analysis of data.

**What GCSE Qualifications Support the Study of this Course?**

GCSE Mathematics, GCSE Statistics and GCSE Physics (NB - GCSE statistics and physics are not prerequisites).

**What are the Qualification Requirements for this Course?**

A grade 4 in GCSE mathematics would be advised for this course.

**How is the Course Delivered?**

This course usually has two teachers teaching the syllabus for 2 hours per week. We expect students to complete a minimum of 1 hour of independent learning that takes form through their multiple homeworks they receive each week. The use of the google classroom is essential to communicating to students ensuring their overall experience is a positive one. This can include sharing lesson slides, recordings, homework and feedback to students.

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| Subject Overview | | |
|---|---|---|
| **Half Term** | **Year 12** | **Year 13** |
| **Autumn 1** | • Introduction to the course<br>• Mathematical modelling | • Medical screening<br>• Valid Arguments<br>• Product prices |
| **Autumn 2** | • Statistics and problem solving<br>• Finance | • Comparing and deciding<br>• Business and Risk<br>• Guessing the answer |
| **Spring 1** | • Working with exponentials<br>• Working with graphs and gradients | • Regression to the mean<br>• Scams and statistics<br>• Voting and decision making process |
| **Spring 2** | • Presenting data and regression<br>• Risk | • Making decisions with risk<br>• Sampling<br>• Approximation and normality |
| **Summer 1** | • Analysis and measures of spread<br>• Normal distribution | This half term is committed to preparation time for externally assessed examinations. |
| **Summer 2** | • Fermi estimation<br>• Use and abuse of percentages | |

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**How is the Course Assessed?**

The course is externally assessed through two 2 hour papers sat at the end of year 2. These papers cover all topics covered across the 2 year course. Paper 1 assessing Quantitative reasoning and Paper 2 assessing quantitative reasoning and problem solving.
Your progress will be monitored through controlled assessments completed in the classroom every half term along with mock examinations that take place after the Christmas break and Easter.

**What is our Recommended Subject Reading list to Support your Study?** –

There are some excellent resources to bridge the gap between GCSE and A level mathematics. One of the best is the Hegarty Maths website. If your school has a subscription you can access the transition tasks and videos provided there.

Failing that, one of the best resources I have seen is A Head Start to A level Mathematics by CGP.

A particularly good YouTube channel is ExamSolutions who provides many solutions to questions, tutorials on topics and live streams for students to work along with.

With all of these wider readings a focus on statistics would be best advised.