

Core Maths

Core Maths (AQA Level 3 Certificate in Mathematical Studies) is a course for the Maths you would use every day and is application and interpretation of the Maths you would have met at GCSE.

Aspects of the Course

Analysis of Data

This section is about comparing and interpreting data and being able to justify and explain which set of data is 'better' and doing so in context. We also extend our knowledge of statistics learnt at GCSE into formalizing correlation and introducing the Normal distribution and confidence intervals

Maths for Personal Finance

This section is about the Maths most adults say they wish they learnt at school. You will learn how to calculate income tax, national insurance, student loan repayments. You will start to understand AER and APR. This section will mostly be applying the percentages used throughout GCSE Maths.

Fermi Estimation

"How many hairs on the average human's head?"

"How many chips are stolen by seagulls in Torquay in the summer months?"

This section is about getting a 'rough' answer to a calculation you will never get the exact answer to! The questions above cannot have an exact answer – there are too many factors involved. In a group of 20 people, there could be 20 different answers, each of which would be correct if you can state any assumptions that you make and justify **YOUR** calculations

Watch this video to see how these sorts of calculations work and why they are called Fermi Estimations

["A Clever Way to Estimate Enormous Numbers"](https://ed.ted.com/lessons/michael-mitchell-a-clever-way-to-estimate-enormous-numbers)

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Critical Analysis of Data

"81.6% of all statistics are made up on the spot!"

This section is about being able to look behind the statistics, graphs and claims made in the media and being able to unpick whether the graph or claim is valid.

Look at these if you want to know more

"3 Ways To Spot A Bad Statistic"

(https://www.ted.com/talks/mona_chalabi_3_ways_to_spot_a_bad_statistic/footnotes?c=207625)

"How Statistics Can Be Misleading"

(<https://ed.ted.com/lessons/how-statistics-can-be-misleading-mark-liddell#watch>)

Inspiring Books to Read

- The Art of Statistics by David Spiegelhalter
- Math on Trial by Coralie Colmez and Leila Schneps
- Factfulness by Hans Rosling
- The Undercover Economist by Tim Harford
- Why do Buses Come in Threes? by Rob Eastaway
- Maths on the back of an Envelope by Rob Eastaway
- The Life Changing Magic of Numbers by Bobby Seagull
- Invisible Women by Caroline Criado Perez
- The Perils of Perception by Bobby Duffy
- Humble Pi by Matt Parker