

Student case study

David, Paul, Amir and Katy were among the very first students to sit the new Core Maths examinations in May 2016. They are typical students among the 3,000 who have been studying Core Maths since its launch in September 2014 and sat the first official Core Maths examination. For some of these 3,000 students, studying Core Maths will have been compulsory, others will have enrolled for the course because they wanted to continue developing their skills in mathematics.

The following case study is based on individual interviews carried out with four students from different centres in England, who each completed the Core Maths course in June 2016. We are grateful for the openness and honesty with which they spoke about their experiences of studying Core Maths. We hope that this case study will offer valuable insight to other students who are considering taking the course in September.

Why study Core Maths?

For David, an engineering student at Langley East Berkshire College, Core Maths was mandatory for David and his fellow engineering students. He studied the course over one year.

At Harrogate College, Paul chose Core Maths rather than A level mathematics, because he intends to study accountancy after college. He believed the applied focus of Core Maths to be more relevant to accountancy than A Level mathematics.

Amir (Richard Huish College) on the other hand did two weeks of A level mathematics alongside her other subjects - biology, chemistry and physics, before switching to Core Maths. The reason for the switch? She believed the mathematics covered within Core Maths would be sufficient to support those subjects and provide a better balance for her than doing A level mathematics as well.

Katy, who studied at St Brendan's Sixth Form College, studied Core Maths over two years. She was keen to continue with mathematics in some form after GCSE. For her, A level mathematics and Further Maths were not an option given the heavy workload she already had with her other subjects (French, geography and environmental studies). Like Amir, she thought Core Maths would be a better fit with those subjects than A Level mathematics.

Benefit of Studying Core Maths

Each of the students interviewed agreed that studying Core Maths had a positive impact on their other subjects. For Paul, who was also taking Accounting and Business studies, Core Maths helped solidify his understanding of certain related topics including taxation, which he had first covered in accounting class.

While Amir found that the content of Core Maths was more relevant to the sciences she was studying than she believed A level mathematics would have been. She acknowledged that with studying three science subjects continuing with mathematics in some form after GCSE mathematics was a necessity, and noted that:

"Core Maths helped me to step up slightly from GCSE but not in a way like A Level mathematics which would have gone completely in another direction."

David studied engineering and found that deepening his mathematical knowledge and understanding through Core Maths, helped with certain topics on the course. He anticipated that there would be even more benefit to having studied Core Maths once he progresses on to Level 3 engineering in September.

Core Maths – building on GCSE mathematics

Students often ask how Core Maths differs to GCSE mathematics. Amir noted that the content of Core Maths was pitched at a higher level than GCSE. Questions in Core Maths are typically more descriptive or text

based and require students to mine each question for relevant data and information so that they can generate an appropriate solution.

David spoke about how Core Maths had provided him with a valuable opportunity to practice the mathematics skills he had acquired at GCSE, ultimately making it easier to apply them to everyday life. He noted that for GCSE, students were shown a method and then asked to practice it.

"We knew what we were doing, but we didn't know why we were doing it."

In contrast, Core Maths was more about empowering students to choose the right methods and approach to solving a problem themselves.

Similarly, Paul commented that Core Maths had helped him both develop new mathematical skills whilst also enabling him to strengthen the mathematical knowledge and understanding he had gleaned from GCSE mathematics.

Likes and dislikes

Without exception the students interviewed spoke enthusiastically of their appreciation for the meaningful contexts encountered in the Core Maths course. Its emphasis on the application of mathematics to real life topics like taxation, mortgages and student loans was embraced by all. Amir commented that she had always liked mathematics as a subject but that the applied focus of Core Maths made it overall nicer mathematics.

For David the real world focus of the topics and problems covered in Core Maths was a welcome aspect of the course. He spoke enthusiastically about how Core Maths can really help you understand what you're doing when you put it into context, offering the example of building a kit car, and being able to measure the headlight angles so they would be legally acceptable.

Paul noted that although there were some aspects of Core Maths that were challenging, he particularly enjoyed the breadth of topics that were covered in Core Maths. This he noted was in contrast to GCSE.

It was rare that any of the four students interviewed had anything negative to say about the course. Paul mentioned that he hadn't enjoyed standard deviation as much as other topics covered while David spoke about how he would have preferred the teacher to provide a little bit more explanation on certain topics/questions. He also noted though that his class had fed this back to the teacher who then addressed the issue in subsequent classes.

Relevance of Core Maths to work, study and life

It's clear that all four students enjoyed the practical or real world context in which topics and problems were embedded for Core Maths. When asked though to reflect on how applicable the skills that they had learned would be not just to their everyday life, but also to their future study and work, again all students responded positively. Although David revealed that he was considering taking A level mathematics in the future, he acknowledged that if he didn't, Core Maths alone would support his further studies in engineering.

Paul also noted the skills he learned when studying Fermi estimation will be very useful in the future, as will the topics on mortgages and student loans.

For Amir who started university in September to study Forensic Science, it is not just the topics she has covered in Core Maths that will be helpful. She now feels more confident in her ability to analyse a problem, with a view to extracting key data and generating a workable solution that she can justify. It is this skill that she believes will be particularly useful studying Forensic Science.

Recommending Core Maths to other students

Without exception, Amir, Katy, David and Paul's said they would recommend Core Maths to other students. David said he would particularly recommend it to students of engineering. For him it is not just about having the qualification, but the fact that Core Maths has enabled him to become more mathematically minded, which he sees as a distinct advantage when studying engineering. Although the course was compulsory for David, he was keen to point out that it wasn't a massive commitment in terms of his

time (he had one lesson a week) and it didn't adversely impact on other studies.

Paul said he would recommend the course to students even if they weren't taking other subjects with a mathematical component because it covered topics like mortgages and taxation, topics that would be beneficial to all students to learn about.

Finally for Katy at St Brendan's Sixth Form College, Core Maths offers students a valuable alternative to A level mathematics.

"I think for students who still want to continue with some form of maths but who might be put off by A level maths, I think it's definitely an option for them. It's quite good to have the option of a different maths from standard A level maths. I'd definitely recommend for someone who wanted to continue with the study of maths to take it."