



EdExcel A Level Further Mathematics

“Mathematics is a more powerful instrument of knowledge than any other that has been bequeathed to us by human agency.” Descartes

Subject Information

A-Level further maths adds a fascinating and challenging depth and breadth to A-Level maths. New topics involving the use of the imaginary number ($\sqrt{-1}$), vectors in 3-dimensions, proof by induction and predator-prey situations are introduced. There are optional elements of the course to explore in further pure, decision maths, mechanics and statistics.

Career Pathways

A-Level further maths is a highly-respected qualification for university and beyond. It often holds the key to lower conditional offers, student bursaries, exemption from maths-based first-year modules and even, ultimately, higher paid careers. The transferable skills of logical reasoning, communication and resilience that are developed during the course are relevant to any career. Students from USF have gone on to study English, linguistics and languages, as well as the more maths-based courses after their further maths A-Level. Where possible, maths and engineering students are expected to have further maths A-Level.

Course Content

Area of Maths	Exams	Total Marks
Core Pure Maths: <ul style="list-style-type: none">• Complex Numbers• Matrices• Polar coordinates• Hyperbolic functions• Differential equations• Extensions to A-Level pure content.	Paper 1: 1 hour 30 minutes Paper 2: 1 hour 30 minutes	75 marks for each paper
One or two options are chosen from: <ul style="list-style-type: none">• Decision Maths – involving optimisation algorithms• Mechanics – including circular motion• Pure – including number theory and groups• Statistics – including Poisson and geometrical distributions Choices are made in January of year 12 and are dependent on the cohort's aptitude, preferences and other subjects.	Paper 3: 1 hour 30 minutes Paper 4: 1 hour 30 minutes	75 marks for each paper

Entry Requirements: A Grade 8 in GCSE Mathematics.

Complementary subjects: *Mathematics (compulsory), Chemistry, Computer Science, Physics*

Excellence in thinking: NRICH's Adventures with Complex Numbers gives a brief insight into this important concept within further mathematics.

<http://nrich.maths.org/complexadventure>