

Course Description

This course is suitable for students who have attained a Grade A or B in Higher Mathematics.

The aim of this course is to build upon and extend students' mathematical learning. During the course, students will advance their skills of selection, application, logical thinking and methods of proof. This will both challenge skills and help students gain a greater appreciation for the role mathematics plays in problem solving.

Advanced Higher Mathematics is delivered in three units providing students with the opportunities to advance their operational and reasoning mathematics skills.

- **Methods in Algebra & Calculus**

The aim of this unit is to advance student knowledge and skills in algebra and calculus that can be used in practical and abstract situations. The outcomes include partial fractions, calculus, first and second order differential equations.

- **Applications in Algebra & Calculus**

The aim of this unit is to advance student knowledge and skills involving the application of algebra and calculus to real-life and mathematical situations. The outcomes include binomial theorem, complex numbers, functions and revolutions.

- **Geometry, Proof & Systems of Equations**

The aim of this unit is to advance student knowledge and skills in order to examine the close relationships between geometry, number and algebra. The outcomes include matrices, vectors, equations and proof.

Assessment

Each unit will be internally assessed with external verification. The Scottish Qualifications Authority stipulates that students are only allowed one re-assessment opportunity for each of the Unit Assessments; therefore these assessments must be revised for thoroughly and taken seriously by all students hoping to achieve this qualification.

The final course assessment will take the form of an external SQA examination. Students will be assessed on the entirety of the Advanced Higher Mathematics course.

Possible next level of study

On successful completion of this course, students could progress to a course in higher education such as a degree or Higher National Diploma. These could be in mathematics or in mathematics - related area. There are many sectors in which mathematical skills are important: Business, Science, Engineering, Technology and Finance. There are also applications in Computer Technology, Encryption Security, Design, Research and Development.