

## AS & A Level Use of Mathematics

### Introduction

Use of Mathematics at AS Level and A Level is designed to encourage an appreciation of how mathematics can be applied to a wide variety of practical situations. As such, it will complement many programmes of study either at AS level or the full A level. You will need sound numerical skills and be prepared to devote time to practising and consolidating the knowledge and routines out of class. The modules studied at AS level are algebra, data analysis and decision maths, all assessed by examination. At A2 level you will study calculus and take coursework module and one written comprehension paper. Use of a graphical calculator is strongly recommended. Study Centre sessions are available for weekly support.

### Year 1

In the first year you will study three modules:

**Algebra (USE 1).** This module extends the algebra you will have covered as part of GCSE Maths and includes new topics such as exponential and logarithmic functions and mathematical modelling.

**Data Analysis (9993)** extends the data handling work covered at GCSE and includes new statistical work such finding measures of spread, correlation and regression and modelling real life situations using the Normal distribution.

**Decision Mathematics (9997)** Decision Maths module includes Mathematical modelling using Graph Theory, solving network problems using algorithms. You will encounter real-life situations such as finding the shortest route between two towns; finding the quickest time to visit many cities; business related problems involving maximising profits and minimising costs and problems which can be solved using critical path analysis.

### Year 2

In the second year you will study 3 more modules:

**Calculus (9998).** In this module you will study rates of change, for example how quickly money invested in an account gathers interest or the rate at which molten metal cools in a foundry. We will also study optimization problems, for example how to design a tin can of a given volume using the minimum amount of metal.

**Mathematical Applications (USE 2).** In this coursework unit you are required to produce two pieces of work for a portfolio which are based on two of the units studied in year 1.

**Mathematical Comprehension (USE 3).** You will be assessed on your understanding of Algebra and Calculus. The first part of the assessment involves pre-release material which you will have to study in order to answer questions in the exam. The second will involve comprehension of an unseen article.

### Assessment

Each module is assessed by a 1½ hour exam, using pre-release material, except the coursework module.

### Specific Entry Criteria

Grade C at least in Maths (Higher tier);