Mathematics

Advanced General Certificate of Education

The mathematics courses offered here at Health Futures UTC are both interesting and challenging. They extend the methods you learned at GCSE and include optional applications of mathematics, such as statistics and mechanics.

Statistics – Collecting and analysing data and using this to make predictions about future events. Many subjects make use of statistical information and techniques. An understanding of probability and risk is important in careers like insurance, medicine, engineering and the sciences.

Mechanics – Modelling and analysing the physical world around us, including the study of forces and motion. Mechanics is particularly useful to students studying physics and engineering.

Course details:

Awarding body: Pearson Edexcel Level 3 Advanced GCE in Mathematics (9MA0)

Course Content:

Pure Mathematics - You will recap GCSE algebra skills and will then study coordinate geometry including the equations of circles and lines. You will also study the language of mathematics. Ever wondered how to calculate the gradient of a curve or the area underneath it? You will be introduced to calculus and the uses of differentiation and integration. You will have the opportunity to extend your ability to manipulate trigonometric functions and identities. If you enjoyed the challenge of problem solving at GCSE then you should find this course very appealing.

Statistics - You will study the importance of statistics in the media by looking at day to day events through the eyes of a journalist for a fictional newspaper. How is data presented and what does it mean? How can a hypothesis be tested using probability?

Mechanics - Mechanics describes the motion of objects and how they respond to forces acting upon them, from cars in the street to satellites orbiting a planet. You will learn techniques of mathematical modelling by turning a complicated problem into a simpler one that can be analysed and solved using mathematics. Many of the ideas you will meet form

an essential introduction to modern fields of study such as cybernetics, robotics, biomechanics and sports science, as well as the more traditional areas of engineering and physics.

Assessment overview:

Edexcel Mathematics A Level

Paper 1 – Pure Mathematics 1 (33%) – 2 hour examination

Paper 2 – Pure Mathematics 2 (33%) – 2 hour examination

Paper 3 – Statistics and Mechanics (33%) – 2 hour examination

      Section A: Statistics

      Section B: Mechanics

Specific entry requirements:

5 GCSEs (Grades 9-4) including grade 6 in GCSE mathematics (higher tier)