



## Applied Science

# BTEC Level 3 National Extended Certificate

The science courses offered here at Health futures UTC are designed to offer academic and vocational experiences to prepare students for both higher education and health-centred careers. We also offer unique opportunities to work with local universities and health professionals as part of our contribution to the extra-curricular programme.

### Course details:

Awarding body: Edexcel 2016 specification (360GLH)

### Content:

The course consists of 4 units of which 3 are mandatory and 2 are external-assessed units.

- Mandatory content (83%).
- External assessment (58%).

### Structure of the course

#### *Unit 1: Principles and Applications of Science 1 – Mandatory unit with external assessment*

Scientists and technicians working in science and science-related organisations must have a good understanding of core science concepts. A strong grasp of these concepts will enable you to use and apply this knowledge and understanding in vocational contexts when studying other units within this qualification.

The topic areas covered in this unit include: animal and plant cells; tissues; atomic structure and bonding; chemical and physical properties of substances related to their uses; waves and their application in communications.

#### *Unit 2: Practical Scientific Procedures and Techniques – mandatory unit with internal assessment*

This unit introduces you to standard laboratory equipment and techniques, including titration, colorimetry, calorimetry, chromatography, calibration procedures and laboratory safety. Through the practical tasks in the unit, you will develop proficiency in the quantitative analytical techniques of titration and colorimetry, including learning to calculate the concentration of solutions. You will use measurement of temperature to study cooling curves and be introduced to paper and thin-layer chromatography (TLC). You will also have the opportunity to calibrate equipment and will be encouraged to be aware of the



safety aspects of given laboratory procedures and techniques.

### *Unit 3: Science Investigation Skills*

In this unit, you will develop the essential skills underpinning practical scientific investigations.

As well as drawing on Unit 1 and Unit 2, these skills will be delivered through subject themes ranging from enzymes and diffusion to electrical circuits. The subject themes provide different contexts for the development of the investigative skills. To complete the assessment task within this unit, you will need to draw on your learning from across your programme.

Science investigative skills will help you in many scientific or enquiry-based learning courses in higher education, as well as prepare you for employment in a science-related industry.

### *Unit 4: Optional unit*

In this unit you will be given the choice of what you wish to base your assignments on to tailor the course to your future aspirations. Units available include physiology, regulation & reproduction, biological molecules, diseases & infections, and genes & genetic engineering.

### **Assessment overview**

External examinations will take place at the end of year 2 and will consist of one written paper and a written task.

Written paper - Unit 1: Principles and Applications of Science I; 2 hours  
The paper is split into three sections, each worth 30 marks:

- Section A – Biology
- Section B – Chemistry
- Section C – Physics.

The paper will include a range of question types, including multiple choice, calculations, short answer and open response. These question types will assess discrete knowledge and understanding of the content in this unit. It is possible to sit the assessment in January or June and one resit option is available to candidates.

### Unit 3 assessment

This assessment involves carrying out a practical investigation and obtain results. This must be completed in one session lasting one hour and 30 minutes, under supervised conditions.

The second part of the assessment involves results/observations obtained from the practical investigation set by the exam board, completed in one sitting under supervised conditions. The assessment task will assess learners' ability to plan, record, process, analyse and evaluate scientific findings, using primary and secondary information/data.

### **Specific Entry Requirements:**

5 GCSEs (Grades 9-4) including chemistry or combined science, English language and mathematics

