biology

A Level

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Exam board: Pearson Edexcel

What is this subject about?

The course is designed to engage and inspire students by showing how an understanding of many contemporary issues requires a grasp of fundamental biological ideas. It will help you appreciate how society makes decisions about biology-related issues and how biology contributes to the success of the economy and society.

What will I study over the two years?

In the first year, the topics are 'Lifestyle, health and risk', 'Genes and health', 'The voice of the genome' and 'Biodiversity and natural resources'. Through these topics you will learn about biological molecules, cell structure, DNA, genetics, the circulatory system, heart disease, diet, the use of plants, and biodiversity.

In the second year, the topics are 'On the wild side', 'Immunity, infection and forensics', 'Run for your life' and 'Grey matter'. Through these topics you will learn about ecology, evolution, diseases such as HIV and TB, muscles, control in plants and mammals, and brain disorders and their treatment. As in the first year, there are many opportunities for discussing ethical issues such as the implications of the Human Genome Project, GM organisms and the use of drugs in sport. Over the course of the two years you will undertake 18 core practicals to develop a range of practical skills and knowledge.

How is the course assessed?

Assessment is by three written exam papers. Questions involving the use of mathematical skills within Biology will contribute to 10% of the assessment.

For the third paper students will be required to read a scientific article in advance of the exam and answer questions on this. Questions in this exam will be synoptic, with answers drawing on two or more topics. There will also be questions assessing the knowledge and understanding of the 18 core practicals carried out throughout the course.

What skills will I need and develop on this course?

You will use your knowledge and understanding to present scientific ideas and arguments, both in writing and orally. You will develop a wide range of laboratory experimental skills including microscope use, microbiology techniques, DNA manipulation, analysis and interpretation of data, and evaluation of methodology and data. You will discuss ethical issues relating to applications of biology in society.

What can the course lead to in terms of higher education and future careers?

Biology can lead to a wide variety of degrees including Biological Science, Sports Science, Sports Rehabilitation, Pharmacy, Medicine, Dentistry, Veterinary Science, Physiotherapy, Occupational Therapy, Nursing and Agriculture.

What are the formal entry requirements for this course?

A Level Biology is a strongly theory based course that is assessed by exams and builds directly on GCSE work in Biology, Chemistry and Maths. You are most likely to succeed if you have an appropriate base of knowledge and a good track-record of success in exam based courses at GCSE overall.

In addition to the College's general entry criteria, you will need to achieve a minimum of grade 6's in GCSE Biology and GCSE Chemistry (or in GCSE Combined Science), a Grade 4 in GCSE English and ideally a minimum of a grade 6 in GCSE Maths (Higher Level).

Furthermore, we would also ideally expect you to have averaged at least a grade 6 in your GCSEs overall. If you have not achieved at this level you will be much more likely to succeed on the BTEC Extended Certificate or Diploma in Applied Science, rather than A Levels in the sciences. Merit on BTEC carries the same UCAS points as a C at A Level. Distinction carries the same UCAS points as an A. Applied Science or Additional Applied Science or non-GCSE Science qualifications are not suitable as preparation for A Level study.

Are there alternative routes forward in Science?

To succeed with A Level Biology you need to be good at understanding and remembering a large body of knowledge, and at applying it under exam conditions to solve unfamiliar problems. This is why ideally an average of least a grade 6 in your GCSEs is needed. If your GCSE track record is not in line with this but you wish to take science to a higher level you should look at our BTEC courses in Applied Science. These are assessed predominantly by coursework and as you go along and not exclusively examined by an exam at the end of two years.

The Extended Certificate is equivalent to one A Level and would give a sufficient base to enable progression to degrees in fields where science has a supporting role – fields such as Sports Science, Sports Therapy, Paramedics, Nursing, Radiography, and Equine Science – as well as to a range of scientifically orientated Foundation degrees. If you want to be able to go on to a wider range of more intensely scientific careers/degrees, you would need to take the Diploma course, which is the equivalent to two A Levels.

There is more detailed information about BTEC Applied Science on its own subject information sheet.

What extra support/enrichment activities are on offer?

Although the emphasis is very much on students taking responsibility for their own learning, the Biology department supports students by holding a 'clinic' each lunchtime, and running regular revision sessions before the exams. The department also run a weekly 'Past Paper Club'. In addition to a visit to London Zoo, we offer a number of optional external talks and visits, for example to Surrey University and to the Royal Society. In the second year students undertake ecological field work with the Field Studies Council.

Subject combination advice:

To progress to many degree courses related to Biology it is essential to study Chemistry at A Level. Maths and Physics go well with Biology, as do Psychology and Geography.

Do I need to take Chemistry alongside Biology?

You don't have to, but you should be aware that there is a lot of Chemistry in the Biology course, so it does really help. You also need to be aware that there are universities that require you to have taken A Level Chemistry in order to undertake a degree in Biology.

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