



Biology



STUDY LEVEL

A level

CONTACT DETAILS

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Right now across your body, without a second thought and in every single cell, billions of processes are happening, keeping you alive. Do you want to know what those processes are, how they came about and how they work? If so, then Biology is the subject for you. The future of our own, and other species will depend upon the quality of scientists being educated now and one of those scientists could be you, ready to make an impact on the living world.

What will I study?

The variety in Biology is astounding, ranging from massive ecosystems to the miniscule world of biological molecules and cells. The topics you will study include – the heart, the digestive system, the immune system, DNA, evolution and biodiversity. You will also look at photosynthesis, respiration, genetic inheritance, the nervous system, muscles, gene technology and genetic fingerprinting. Biology also includes a lot of practical work, teaching you the skills to carry out lab techniques and to analyse and scrutinise data.

Co-curricular activities?

We run a programme of enrichment activities, including talks from visiting university academics and dissections. Students aiming for degree courses at Oxbridge, or in Medicine, Veterinary Medicine and Dentistry are given additional support to help them achieve their goals, such as interview practice, personal statement workshops and entrance exam preparation from visiting experts and experienced members of staff.

Where might it lead?

Most Biology students go to university to study for degrees in biological sciences, the sciences of the future, e.g. healthcare, genetics, biotechnology, pharmacology, environmental biology and microbiology. Biology A level is essential for medicine, veterinary medicine and dentistry, and important for physiotherapy, nursing and sports science.

Course Breakdown

Course Summary

- Exam board is AQA

Paper	Content	Marks	Duration	Weighting
Paper 1	Any content from topics 1-4, including relevant practical and maths skills	91	2 hours	35%
Paper 2	Any content from topics 5-8, including relevant practical and maths skills	91	2 hours	35%
Paper 3	Any content from topics 1-8, including relevant practical and maths skills plus an essay	78	2 hours	30%

Summary of A level Content

Topic 1: Biological molecules

Carbohydrates, lipids, proteins; Enzymes; DNA and RNA; ATP, water, inorganic ions

Topic 2: Cells

Cell structure; Cell division; Transport across cell membranes; The immune system

Topic 3: Organisms exchange substances with their environment

Gas exchange; Digestion and absorption; The heart and blood transport in animals; Water and glucose transport in plants.

Topic 4: Genetic information, variation and relationships between organisms

DNA, genes and chromosomes; Protein synthesis; Genetic diversity by mutation or meiosis Classification and taxonomy.

Topic 5: Energy transfer in and between organisms

Photosynthesis; Respiration; Energy and ecosystems; Nutrient cycles

Topic 6: Organisms respond to changes in their internal and external environments

Control of Heart Rate; The nervous system and receptors; Muscles; Control of body temperature, blood glucose and blood water.

Topic 7: Genetics, populations, evolution and ecosystems

Genetic inheritance; Evolution and natural selection; Ecosystems and ecology.

Topic 8: The control of gene expression

Control of gene expression; Using genome projects; Gene technologies and genetic engineering

Students will also complete 12 required practicals over the two years including: Investigation into the effect of a named variable on the rate of an enzyme-controlled reaction; Production of a dilution series of a solute to produce a calibration curve with which to identify the water potential of plant tissue; Dissection of animal or plant gas exchange or mass transport system.