



Holly Lodge High School A-level Biology 2021

A Level Biology: A-level Biology lasts two years, with exams at the end of the second year. Biology, like all sciences, is a practical subject. Throughout the course you will carry out practical activities including: • using microscopes to see cell division • dissection of animal or plant systems • aseptic technique to study microbial growth • investigating activity within cells • investigating animal behaviours • investigating distributions of species in the environment. These practicals will give you the skills and confidence needed to investigate the way living things behave and work. It will also ensure that if you choose to study a Biology-based subject at university, you'll have the practical skills needed to carry out successful experiments in your degree.

A Level UCAS points

Grade	Points
A*	56
A	48
B	40
C	32
D	24
E	16

Cultural Capital

Understand how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society.

Course Outcomes

The exams will measure how students have achieved the following assessment objectives.

- AO1: Demonstrate knowledge and understanding of scientific ideas, processes, techniques and procedures
- AO2: Apply knowledge and understanding of scientific ideas, processes, techniques and procedures:
 - in a theoretical context
 - in a practical context
 - when handling qualitative data
 - when handling quantitative data
- AO3: Analyse, interpret and evaluate scientific information, ideas and evidence, including in relation

Paper 1	Paper 2	Paper 3
What's assessed	What's assessed	What's assessed
• Any content from topics 1–4, including relevant practical skills	• Any content from topics 5–8, including relevant practical skills	• Any content from topics 1–8, including relevant practical skills

3.8 The control of gene expression (A-level only)
Cells are able to control their metabolic activities by regulating the transcription and translation of their genome. Although the cells within an organism carry the same coded genetic information, they translate only part of it. In multicellular organisms, this control of translation enables cells to have specialised functions, forming tissues and organs.

YEAR TWO

Topic 3.5 Energy transfers in and between organisms (A-level only)
Life depends on continuous transfers of energy. In photosynthesis, light is absorbed by chlorophyll and this is linked to the production of ATP. In respiration, various substances are used as respiratory substrates. The hydrolysis of these respiratory substrates is linked to the production of ATP.

Topic 3.6 Organisms respond to changes in their internal and external environments (A-level only)
A stimulus is a change in the internal or external environment. A receptor detects a stimulus. A coordinator formulates a suitable response to a stimulus. An effector produces a response.

Topic 3.7 Genetics, populations, evolution and ecosystems (A-level only)
The theory of evolution underpins modern Biology. All new species arise from an existing species. This results in different species sharing a common ancestry, as represented in phylogenetic classification. Common ancestry can explain the similarities between all living organisms, such as common chemistry.

Topic 3.4 Genetic information, variation and relationships between organisms
Biological diversity – biodiversity – is reflected in the vast number of species of organisms, in the variation of individual characteristics within a single species and in the variation of cell types within a single multicellular organism.

Topic 3.3 Organisms exchange substances with their environment
The internal environment of a cell or organism is different from its external environment. The exchange of substances between the internal and external environments takes place at exchange surfaces. To truly enter or leave an organism, most substances must cross cell plasma membranes.

Guided learning hours is 360 hours

Weighting of assessment objectives for AS Biology

Assessment objectives (AOs)	Component weightings (approx %)		Overall weighting (approx %)
	Paper 1	Paper 2	
AO1	47–51	33–37	35–40
AO2	35–39	41–45	40–45
AO3	13–17	21–25	20–25
Overall weighting of components	50	50	100

10% of the overall assessment of AS Biology will contain mathematical skills equivalent to Level 2 or above.

At least 15% of the overall assessment of AS Biology will assess knowledge, skills and understanding in relation to practical work.

YEAR ONE

Topic 3.1 Biological Molecules
All life on Earth shares a common chemistry. This provides indirect evidence for evolution. Despite their great variety, the cells of all living organisms only a few groups of carbon-based compounds that interact in similar ways. Carbohydrates, lipids, proteins, nucleic acids and water.

Topic 3.2 Cells
All cells have a cell-surface membrane and, in addition, eukaryotic cells have internal membranes. The basic structure of these plasma membranes is the same and enables control of the passage of substances across exchange surfaces by passive or active transport.

Topics 5 to 8 and required practicals

Topics 1 to 4 and required practicals

Key assessments:

- In class assessments at the end of each topic.
- Mock exams
- Required Practical CPAC assessments