

# Biology

## General Information

Biology involves the study of living organisms: the way they work and their interactions with each other and the environment. It can cover a range from the smallest virus to the largest blue whale or redwood tree! The Biological Sciences have developed rapidly during recent years and their relevance to a wide range of agricultural, environmental, medical and industrial problems is becoming more apparent. This course has a strong practical emphasis and aims to develop problem-solving ability through discussion work and practical experience.



### Entry requirements

You should have at least a grade 6 in GCSE Maths and an average GCSE score of 5.5. In addition you should have one of the following:

- Grade 6 in both grades of Combined Science
- Grade 6 in GCSE Biology

In this subject, particular skills and aptitudes will be required, many of which will be demonstrated by students' GCSE profiles. Entry requirements might be changed in light of curriculum reform.

## Advanced Level

(Exam board – OCR)  
(Specification code: H420)

### Course content

<b>Module 1 – Development of practical skills in biology</b>	
Skills of planning, implementing, analysis and evaluation	
<b>Module 2 – Foundations in biology</b>	
Includes: Cell structure; Biological molecules, Nucleotides and nucleic acids; Enzymes; Biological membranes; Cell division, cell diversity and cellular organisation	
<b>Module 3 – Exchange and transport</b>	<b>Module 4 – Biodiversity, evolution and disease</b>
Includes: <ul style="list-style-type: none"> <li>• Exchange surfaces</li> <li>• Transport in animals</li> <li>• Transport in plants.</li> </ul>	Includes: <ul style="list-style-type: none"> <li>• Communicable diseases, disease prevention and the immune system</li> <li>• Biodiversity</li> <li>• Classification and evolution.</li> </ul>
<b>Module 5 – Communications, homeostasis and energy</b>	<b>Module 6 – Genetics, evolution and ecosystems</b>
Includes: <ul style="list-style-type: none"> <li>• Communication and homeostasis</li> <li>• Excretion as an example of homeostatic control</li> <li>• Neuronal communication</li> <li>• Hormonal communication</li> <li>• Plant and animal responses</li> <li>• Photosynthesis</li> <li>• Respiration</li> </ul>	Includes: <ul style="list-style-type: none"> <li>• Cellular control</li> <li>• Patterns of inheritance</li> <li>• Manipulating genomes</li> <li>• Cloning and biotechnology</li> <li>• Ecosystems</li> <li>• Populations and sustainability</li> </ul>

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## Examination Details

This is a linear course and all content will be examined at the end of the second year.

A Level Biology A					
Assessment overview					
Paper			Marks	Duration	Weighting
Paper 1	<b>Biological processes</b>		100	2 hr 15	37%
	Section A	Multiple choice	15		
	Section B	Structured questions and extended response questions covering theory and practical skills	85		
Paper 2	<b>Biological diversity</b>		100	2 hr 15	37%
	Section A	Multiple choice	15		
	Section B	Structured questions and extended response questions covering theory and practical skills	85		
Paper 3	<b>Unified biology</b>		70	1 hr 30	26%
	Structured questions and extended response questions covering theory and practical skills		70		

### How it is taught

Teaching methods will be varied and will include teacher-led, small group work, student presentations, problem solving exercises, discussion, video and ICT inputs. In order to achieve success at advanced level, you are encouraged to take greater responsibility for your own learning than at GCSE and regular completion of homework assignments will be expected, as well as a significant volume of independent work outside of lessons. Practical work is included, regularly and where appropriate, to teach skills necessary for the Practical Endorsement aspect of the course.

## Advanced Level

### Practical skills

Practical skills will be assessed within all written exams. You will also build up a portfolio of evidence based on your practical experience. This will be reported separately as the Practical Endorsement.

### Useful / common subject combinations

A large number of students combine Biology with Chemistry and this is useful for any progression to medical courses. A number of our students combine Biology with Maths and/or Physics; this then enables a very wide choice of future options specialising in Science or Engineering.

Biology with Geology and/or Geography is also a good combination. However, an increasing number of students successfully combine Biology with other subject such as Business Studies, English, History, Psychology or a language, to give themselves a broader education.

### Careers / HE information

The range of possibilities is vast: agriculture, horticulture, plant biology, medicine, dentistry, physiotherapy, speech therapy, nursing, biomedical science, pharmacy, pharmacology, forensic science, veterinary science, biological science, marine biology, microbiology, food sciences, biochemistry, biotechnology, ecology, environmental studies and teaching.

Equally, the problem solving and investigative skills gained are useful to enter a non-scientific area such as the legal profession.