BIOLOGY (OCR SPECIFICATION A)

Subject specific entry requirements: Biology B or Science (double) BB

General Content for H420 (A level Biology)

Module 1 – Development of practical skills in biology
1.1 Practical skills assessed in a written examination
1.2 Practical skills assessed in the practical endorsement
Module 2 – Foundations in biology
2.1.1 Cell structure
2.1.2 Biological molecules
2.1.3 Nucleotides and nucleic acids
2.1.4 Enzymes
2.1.5 Biological membranes
2.1.6 Cell division, cell diversity and cellular organisation
Module 3 – Exchange and transport
3.1.1 Exchange surfaces
3.1.2 Transport in animals
3.1.3 Transport in plants
Module 4 – Biodiversity, evolution and disease
4.1.1 Communicable diseases, disease prevention and the immune system
4.2.1 Biodiversity
4.2.2 Classification and evolution
Module 5 – Communication, homeostasis and energy
5.1.1 Communication and homeostasis
5.1.2 Excretion as an example of homeostatic control
5.1.3 Neuronal communication
5.1.4 Hormonal communication
5.1.5 Plant and animal responses
5.2.1 Photosynthesis
5.2.2 Respiration
Module 6 – Genetics, evolution and ecosystems
6.1.1 Cellular control
6.1.2 Patterns of inheritance
6.1.3 Manipulating genomes
6.2.1 Cloning and biotechnology
6.3.1 Ecosystems
6.3.2 Populations and sustainability.

Methods of Assessment

Paper 1- Fundamentals of biology: 110 marks; 2hr 15 mins; 41% weighting.
Paper 2- Scientific literacy in biology: 100 marks; 2hrs 15 mins; 37% weighting.
Paper 3- Practical skills in biology: 60 marks; 1hr 30 mins; 22% weighting.
Practical endorsement- Pass/Fail; non-exam assessment; reported separately.

Skills and aptitudes required

Throughout the course you will be expected to show that you can:

- Show understanding of specific biological facts, terminology, concepts and practical techniques
- Show understanding of ethical, social, economic, environmental and technological implications and applications
- Select, organise and present relevant information clearly and logically using appropriate vocabulary.
- Explain and interpret phenomena and effects in terms of biological concepts, presenting arguments and ideas
- Interpret and translate data presented as continuous prose, or in tables, diagrams, drawings and graphs
- Apply biological principles and concepts in solving problems in unfamiliar situations
- Assess the validity of biological information, experiments, inferences and statements

- Devise, plan, conduct appropriately, interpret, explain and evaluate experimental activities
- Bring together principles and concepts from different areas of biology and apply them in a particular context
- Use biological skills in contexts which bring together different areas of biology

Key Features of Study

Required practical work throughout the two years with evidence collated on 12 practical tasks in a lab book/folder; personal research of specified topics; continuous assessment of progress through examination questions. Essays are used to encourage deeper engagement with the subject material, as well as offering opportunities to make synoptic links between different topics within the subject.

Work-load

A challenging A level option with a significant quantity of material to be learnt and a substantial subject-specific vocabulary. It is expected that as well as time spent in class, students would spend a minimum of one hour of study at home for every one hour in lessons. This would include: set homework including experimental write-ups; reading your textbook and making notes on the subject of recent lessons; learning work as you go along - all staff set periodic tests; reading other biology books; keeping up to date with biological information, watching TV programmes, listening to the radio and podcasts and reading periodicals; keeping a note of the time you spend on your work and set targets, so that you can analyse your progress meaningfully; practising answering questions from textbooks and old exam papers. Essays set a minimum of 4 times a term.

Career connections

Biology is a useful subject to consider if you are interested in natural sciences, zoology, conservation, medicine, veterinary science, biochemistry, pharmacy, pathology, horticulture, agriculture, ecology and environmental science. It is one of the “facilitating subjects” identified by the Russell Group of top universities- named because it is required by a large number of university courses and is generally considered to be more rigorous.