

SUBJECT: BIOLOGY

AWARD RECEIVED: ADVANCED HIGHER

This course is based on the integrative ideas and unifying principles of modern biological science. It covers key aspects of life science at the molecular scale and extends to aspects of the biology of whole organisms that are among the major driving forces of evolution.

The course aims to develop a sound theoretical understanding and practical experience of experimental investigative work in biological science. It further develops candidates' abilities to think analytically, creatively and independently, and to make reasoned evaluations. Candidates can develop their communication, collaborative working and leadership skills, and can apply critical thinking in new and unfamiliar contexts to solve problems.

ENTRY LEVEL

Students should have Higher Biology or Higher Human Biology, ideally at A or B.

It is designed for candidates who can respond to a level of challenge, especially those considering further study or a career in biology and related disciplines.

COURSE CONTENT

The course content includes the following areas of biology:

Cells and proteins

The key areas covered are:

- ❖ laboratory techniques for biologists
- ❖ proteins
- ❖ membrane proteins
- ❖ communication and signalling
- ❖ protein control of cell division

Organisms and evolution

The key areas covered are:

- ❖ field techniques for biologists
- ❖ evolution
- ❖ variation and sexual reproduction
- ❖ sex and behaviour
- ❖ parasitism Investigative biology

Investigative biology

The key areas covered are:

- ❖ scientific principles and process
- ❖ experimentation
- ❖ reporting and critical evaluation of biological research

Project

Candidates carry out an in-depth investigation of a biology topic. Candidates choose their topic and individually investigate/research its underlying biology.

This is an open-ended task that may involve candidates carrying out a significant part of the work without close supervision. Throughout the project candidates work autonomously, making independent and rational decisions based on evidence and interpretation of scientific information, which involves analysing and evaluating results. Through this, candidates further develop and enhance their scientific literacy skills. Candidates must produce a project report.

ASSESSMENT

To gain an overall Award for this Course, students need to pass the:

Course Assessment components, marked by the SQA:

1. **Project** (represents 25% of the overall marks for the course assessment)
2. **Exam** (represents 75% of the overall marks for the course assessment)

CONDITIONS OF AWARD

Candidates' overall grades are determined by their performance across the course assessment. The course assessment is graded A-D on the basis of the total mark for all course assessment components.

HOMEWORK

Homework and self-supported study are essential parts aspects of the course. Homework will take the form of among other things: write up of course lab work; extended answer questions; data handling questions and preparation of the investigation report.

TRANSFERABLE SKILLS

There are many very useful and valuable transferable skills gained by studying Advanced Higher Biology, including: researching, ICT, reporting, numeracy, literacy, graphing, investigating, practical experimental skills, analysing, presentation, evaluating, to name a few.

PROGRESSION

- ❖ A Higher National Diploma (HND) or degree in biology or a related area, such as medicine, dentistry, veterinary medicine, professions allied to medicine, horticulture, pharmacology, environmental science, or health
- ❖ A career in a biology-based discipline or a related area, such as health sector, agricultural science, or education, environmental services