



Biology

Course Information

We study SNAB Salters Nuffield Advanced Biology AS/A Level, which is a more practical based course. We follow a context led approach which follows a theme and teaches the content around this theme.

SNAB does not present content in traditional themes such as 'cell structure'; instead the course adopts a context-led approach. Topics are based on a storyline or contemporary issue, such as risk and cardiovascular disease, with biological principles introduced when required to aid understanding of the context.



Course Content

AS Topics

1: Lifestyle, health and risk

- The concept of risks to health, how these can be assessed, and what affects our perceptions of risk.
- The heart and circulation, and understanding how these are affected by our diet and activity.
- The biochemistry of food and why this matters.

2: Genes and health

- How changes in DNA can cause genetic disease, using cystic fibrosis as an example.
- Cell membrane structure, how substances move across membranes, and how proteins are made.
- Treatments for genetic disease, and the ethical issues raised by today's genetics.

3: Voice of the genome

- Gene structure and function.
- Stem cells, their potential in medicine, and the arguments for and against their use.
- Regulation of gene expression and the control of development in organisms.

4: Biodiversity and natural resources

- What is biodiversity? Classification, adaptation and natural selection.
- Disappearing biodiversity.
- Plant anatomy and function.
- Human use of plants.

A2 Topics

5: On the wild side

- Photosynthesis as the primary process underpinning the majority of ecosystems.
- How ecosystems work.
- Evidence for climate change, evolution and extinction.
- Scientific understanding and our responsibilities as stewards of the environment.

6: Infection, immunity and forensics

- Techniques used by forensic pathologists to determine the cause of death, and how long since death occurred.
- Evolutionary battles between invading pathogens and their hosts.
- The hosts' barriers and internal mechanisms to combat infections.

7: Run for your life

- Physiological adaptations that enable strenuous exercise in humans and other animals.
- Biochemical requirements for respiration and the links between homeostasis, muscle physiology and performance.
- How medical technology enables more people to participate in sport.
- Can the use of performance-enhancing substances by athletes be justified?

8: Grey matter

- Sight and the nervous system.
- Brain structure and functioning, the response to stimuli and the development of vision and learning.
- Genetics and the use of animal models in understanding brain structure.
- Comparing nature and nurture in brain development.
- The ethics of using animals for medical research.

Entry Requirements

Two B grades at GCSE Science. If Triple Science has been studied, this must include a B grade in Biology.



Future Opportunities

The course is a suitable preparation for biological studies in higher and other educational establishments and for professional courses which require students to have a knowledge of biology at a higher level. The course performs a useful educational function, as well as providing opportunities for an appreciation of the social, moral and ethical complexities of many current biological issues.



Please scan here for student testimonials and further information