

Change to all A Levels

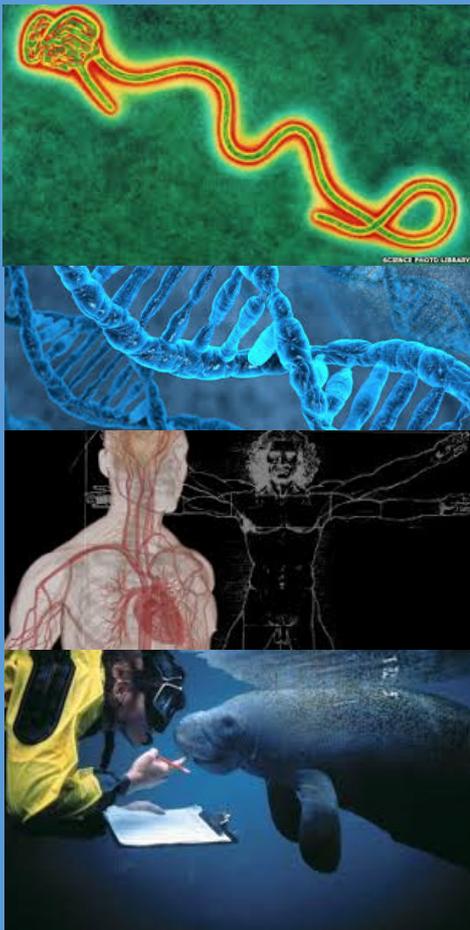
Changes are under way for all A levels in all schools and colleges and some awarding bodies are still revising their syllabuses for 2015. As a result, this guide is an illustration of the content but the exact details may change.

The most significant changes in A Levels and AS exams (but see below for the different timescale in this subject) are:

- All assessment for A Levels will be through end of course exams with no practical element in most subjects.
- There will still be AS as one year “half A Levels” but you won’t be able to add an A2 to make them into a full A Level.
- This means if you want a full A Level you will need to decide that at the start of your course.
- You will still be able to combine A Levels with other types of qualifications such as BTECs.
- These changes are happening at different times for different subjects.
- You’ll have lots of support from us before you have to make your final choice of subjects.

Specifics for this subject:

The first teaching for the new examinations is in September 2015 leading to an end of course exam in 2017.



What is Biology?

Biology is the natural science concerned with life and living organisms. It can therefore lead on to a wide variety of careers associated with human and animal health and well-being.

The subject matter for A Level Biology includes natural structures, evolution, growth and disease. It is based on the building block of cells, and studies how organisms use energy to grow and transform and to regulate their internal environments.

Sub-divisions of Biology include:

- Microbiology (e.g. viruses and bacteria and especially the study of communicable diseases);
- Physiology (the physical and chemical functions of tissues and organs);
- Biochemistry (the fundamental Chemistry behind all life);
- Molecular Biology (how the molecules within organisms combine to create and sustain life); and
- Bioengineering (harnessing our knowledge of biological structures to solve real world problems).

What GCSEs do I need to study Biology?

You will need to have done well in Biology at GCSE (which will normally mean at least a B) or to have performed strongly in biological elements of Combined Science.



What could I do with it afterwards?

Biology links well with other sciences (Physics and Chemistry) and with Psychology. Breakthroughs increasingly result from the study of complex data patterns on lifestyles and behaviour so Computer Science is also a good partner subject. Most careers linked to Biology require degree level study but there are growing Apprenticeship opportunities in specialist areas such as Lab Technician work. Biology can lead to a wide range of careers including medicine, veterinary science, environmental science, biomedical engineering, zoology, research, conservation, oceanography, agriculture and pharmaceuticals.



What form does the assessment take?

Written end of course exams test your ability to apply Biological knowledge, combining multiple choice, short structured answers and extended answers. There is also a pass/fail “practical endorsement” based on your ability to perform a minimum of 12 practicals. This reports separately rather than contributing to your A Level grade.

Course details

The new A Level syllabuses include content-led approaches (specific topics that cover the key concepts) and context-led approaches (practical problems that demonstrate how Biology is applied). These are different approaches to gaining the same understanding. We will make a decision on which to adopt early in 2015.

Examples of modules in a **content-led approach**

- **Practical skills development**
 - Planning, implementing, analysis & evaluation
- **Foundations in Biology**
 - Cell structure, division, diversity and organisation
 - Biological molecules
 - Nucleotides and nucleic acids
- **Exchange and transport**
 - Exchange surfaces
 - Transport in plants and animals
- **Biodiversity, evolution and communicable disease**
 - Immune systems and disease prevention
 - Biodiversity
 - Classification and evolution
- **Communications, homeostasis and energy**
 - Communication and homeostasis
 - Excretion as an example of homeostatic control
 - Neurons and hormones
 - Photosynthesis and respiration
- **Genetics, evolution and ecosystems**
 - Cellular control
 - Patterns of inheritance
 - Manipulating genomes, cloning & biotechnology
 - Ecosystems, populations and sustainability

Examples of modules in a **context-led approach**

- **Practical skills development**
 - Planning, implementing, analysis & evaluation
- **Scientific literacy in Biology**
 - Cells and chemicals for life
 - Microscopy, cell structure and function
 - Proteins & enzymes and nucleic acids
 - Water and gas in plants and animals
- **Cell division, development and disease control**
 - Cell division and differentiation
 - Meiosis, foetal growth and development
 - Evolution and classification
 - Pathogens and immune systems
 - Controlling communicable diseases
 - Non-communicable diseases (e.g. cancer)
- **Energy, reproduction and populations**
 - Cellular respiration, metabolism and exercise
 - Fertility, assisted reproduction and contraception
 - Effects of ageing on reproductive systems
 - Photosynthesis, food and environment
- **Genetics, control and homeostasis**
 - Inheritance, genetics and epigenetics
 - The nervous system
 - Modifying visual function
 - Management of diabetes & kidney malfunctions