

# IB BIOLOGY (HL) SUBJECT BRIEF

## (first Examination 2025)

### Course description and aims:

Biology is the study of life. It is a science that deals with life and living things, examines their structure, their functions, their relations, the living and inanimate environment, their changes, and their diversity. So, biology is an endless source of areas. It is important at a time of growing pressure on the human population and the environment. Studying biology in the DP, students should become aware of how scientists work and communicate with each other. They will learn the variety of forms of scientific methods, design investigations, collect data, develop skills, analyse results, collaborate-evaluate, and communicate their findings. The Aims of the DP biology course are to enable students to:

1. develop conceptual understanding that allows connections to be made between different areas of the subject, and to other DP sciences subjects
2. acquire and apply a body of knowledge, methods, tools and techniques that characterize science
3. develop the ability to analyse, evaluate and synthesize scientific information and claims
4. develop the ability to approach unfamiliar situations with creativity and resilience
5. design and model solutions to local and global problems in a scientific context
6. develop an appreciation of the possibilities and limitations of science
7. develop technology skills in a scientific context
8. develop the ability to communicate and collaborate effectively
9. develop awareness of the ethical, environmental, economic, cultural, and social impact of science

### Syllabus content:

#### Unity and diversity

- Water
- Nucleic acids
- Origins of cells \*
- Cell structure
- Viruses \*
- Diversity of organisms
- Classification and cladistics \*
- Evolution and speciation
- Conservation of biodiversity

#### Form and function

- Carbohydrates and lipids
- Proteins
- Membranes and membrane transport
- Organelles and compartmentalization
- Cell specialization
- Gas exchange
- Transport
- Muscle and motility \*
- Adaptation to environment
- Ecological niches

#### Interaction and interdependence

- Enzymes and metabolism
- Cell respiration
- Photosynthesis
- Chemical signalling \*
- Neural signalling
- Integration of body systems
- Defence against disease
- Populations and communities
- Transfer of energy and matter

#### Continuity and change

- DNA replication
- Protein synthesis
- Mutations and gene editing
- Cell and nuclear division
- Gene expression \*
- Water potential
- Reproduction
- Inheritance
- Homeostasis
- Natural selection
- Sustainability and change
- Climate change

### Practical work:

#### Experimental programme

- Practical work
- Scientific investigation
- Collaborative sciences project

## Assessment Information:

### External:

#### **Paper 1A**

*(40 multiple-choice questions (Core))*

#### **Paper 1B**

*Data-based questions (four questions that are syllabus related, addressing all themes)*

Duration: 2h / Weighting: 36% / Marks: 75

#### **Paper 2**

*(Data-based, short answer and extended response questions)*

Duration: 2h 30min / Weighting: 44% / Marks: 80

### Internal:

Scientific investigation

*(Investigation and write-up of 6 to 12 pages)*

Duration: 10h / Weighting: 20% / Marks: 24

**Sources:** OCC IB DP Biology guide (first assessment 2025)

<http://www.ibo.org/programmes/diploma-programme/curriculum/sciences/biology/>

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