

IB Biology @ HLG: Course Outline 2023-2025

Semester	IB	Abitur	NOS/ TOK (work in progress)
S1	<p>A: Unity and diversity A1.1 Water A2.1 Origin of cells A2.2 Cell structure</p> <p>B: Form and function B2.1 Membranes and membrane transport B2.2 Organelles and compartmentalization</p> <p>C: Interaction and interdependence C1.2 Cell respiration C2.2 Neural signalling</p> <p>D: Continuity and change D3.3 Homeostasis D2.3 Water potential</p>	<p>Informationsverarbeitung in Lebewesen (Information processing in living organisms) + Leben und Energie (Life and Energy)</p>	<p>NOS (see p. 6ff. Biology Guide) TOK: What is the role of imagination and intuition in the creation of hypotheses in the natural sciences? How can it be that scientific knowledge changes over time? Why might some people regard science as the supreme form of all knowledge?</p>
S2	<p>A: Unity and diversity A4.2 Conservation of biodiversity</p> <p>B: Form and function B4.1 Adaptation to environment B4.2 Ecological niches</p> <p>C: Interaction and interdependence C1.3 Photosynthesis <i>C3.1 Integration of body systems</i> <i>C3.2 Defence against disease</i> C4.1 Populations and communities C4.2 Transfers of energy and matter</p> <p>D: Continuity and change D4.3 Climate change</p>	<p>Lebewesen in ihrer Umwelt (Organisms and their environment) + Leben und Energie (Life and Energy)</p>	<p>NOS (see p. 6ff. Biology Guide) TOK: In what ways have influential individuals contributed to the development of the natural sciences as an area of knowledge? Is prediction the primary purpose of scientific knowledge?</p>

	Collaborative Science Project		
S3	<p>A: Unity and diversity A1.2 Nucleic Acids</p> <p>B: Form and function B1.1 Carbohydrates and lipids B1.2 Proteins B2.3 Cell specialization</p> <p>C: Interaction and interdependence C1.1 Enzymes and metabolism</p> <p>D: Continuity and change D1.1 DNA replication D1.2 Protein synthesis D1.3 Mutation and gene editing D2.1 Cell and nuclear division D3.1 Reproduction D3.2 Inheritance</p> <p>Practical Activities</p> <p>Scientific Investigation</p>	<p>Vielfalt des Lebens (Genetik) (Diversity of Life)</p>	<p>NOS (see p. 6ff. Biology Guide)</p> <p>TOK: What factors contribute to the refinement or replacement of knowledge in the natural sciences?</p> <p>How do the tools that we use shape the knowledge that we produce?</p> <p>Should scientific research be subject to ethical constraints or is the pursuit of all scientific knowledge intrinsically worthwhile?</p>
S4	<p>A: Unity and diversity A3.1 Diversity of organisms A4.1 Evolution and Speciation A4.2 Conservation of biodiversity</p> <p>B: Form and function <i>B3.1 Gas exchange</i> <i>B3.2 Transport</i></p> <p>D: Continuity and change D4.1 Natural selection D4.2 Stability and change</p>	<p>Vielfalt des Lebens (Evolution) (Diversity of Life)</p>	<p>NOS (see p. 6ff. Biology Guide)</p> <p>TOK: To what extent do the classification systems we use in the pursuit of knowledge affect the conclusions that we reach?</p> <p>What is the role of paradigm shifts in the progression of scientific knowledge?</p>