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# *IB Biology Syllabus—First Examination 2009*

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## Core Material (Covered in Both Standard Level and Higher Level Courses)

### Topic 1: Statistical Analysis

#### Topic 2: Cells

- 2.1 Cell Theory
- 2.2 Prokaryotic Cells
- 2.3 Eukaryotic Cells
- 2.4 Membranes
- 2.5 Cell Division

#### Topic 3: The Chemistry of Life

- 3.1 Chemical Elements and Water
- 3.2 Carbohydrates, Lipids and Proteins
- 3.3 DNA Structure
- 3.4 DNA Replication
- 3.5 Transcription and Translation
- 3.6 Enzymes
- 3.7 Cell Respiration
- 3.8 Photosynthesis

#### Topic 4: Genetics

- 3.1 Chromosomes, Genes, Alleles and Mutations
- 3.2 Meiosis
- 3.3 Theoretical Genetics
- 3.4 Genetic Engineering and Biotechnology

#### Topic 5: Ecology and Evolution

- 5.1 Communities and Ecosystems
- 5.2 The Greenhouse Effect
- 5.3 Populations
- 5.4 Evolution
- 5.5 Classification

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### Topic 6: Human Health and Physiology

- 6.1 Digestion
- 6.2 The Transport System
- 6.3 Defense against Infectious Disease
- 6.4 Gas Exchange
- 6.5 Nerves, Hormones and Homeostasis
- 6.6 Reproduction

## Additional Higher Level Material (For HL Courses Only)

### Topic 7: Nucleic Acids and Proteins

- 7.1 DNA Structure
- 7.2 DNA Replication
- 7.3 Transcription
- 7.4 Translation
- 7.5 Proteins
- 7.6 Enzymes

### Topic 8: Cell Respiration and Photosynthesis

- 8.1 Cell Respiration
- 8.2 Photosynthesis

### Topic 8: Genetics

- 8.1 Meiosis
- 8.2 Dihybrid Crosses
- 8.3 Autosomal Gene Linkage
- 8.4 Polygenic Inheritance

### Topic 9: Plant Science

- 9.1 Plant Structure
- 9.2 Transport in Angiospermophytes
- 9.3 Reproduction in Angiospermophytes

### Topic 10: Genetics

- 10.1 Meiosis
- 10.2 Dihybrid crosses and gene linkage
- 10.3 Polygenic Inheritance

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### Topic 11: Human Health and Physiology

- 11.1 Defense Against Infectious Disease
- 11.2 Muscles and Movement
- 11.3 The Kidney
- 11.4 Reproduction

## Options For Both SL and HL Courses

### Option D: Evolution

- D.1 Origin of Life on Earth
- D.2 Species and Speciation
- D.3 Human Evolution

### *Extension (Higher Level Only)*

- D.4 The Hardy-Weinberg Principle
- D.5 Phylogeny and Systematics

### Option E: Neurobiology and Behavior

- E.1 Stimulus and Response
- E.2 Perception of Stimuli
- E.3 Innate and Learned Behavior
- E.4 Neurotransmitters and Synapses

### *Extension (Higher Level Only)*

- E.5 The Human Brain
- E.6 Further Studies of Behavior