Year 12 Biology
NCEA Level 2
Course Outline 2021

Ecology

- Taxonomy/Classification (overview).
- Habitat, Adaptations and Ecological Niche.
- Population Structure and Dynamics.
- Community Links and Patterns.
- ***Stream study/Data collection + analysis and report (internal assessment)***

Cells

- Preparing biological material for viewing under a light microscope
- Viewing biological material using a light microscope to enable detail of cell structures and components to be determined
- Cell Structure and Function – Cell components and organelles
- Reasons for variation in cell size and shape.
- Types of cells and differences between cells.
- Cell Processes – transport across cell membranes
- ***Practical investigation and report (internal assessment)***
- Enzymes structure and function
- Cellular respiration overview
- Photosynthesis overview
- Cell division (DNA replication and mitosis)

Gene Expression

- DNA and RNA structure
- What is the Genetic code?
- What are proteins, and what do they do?
- The role of the genetic code in determining the structure of proteins.
- How complex molecules are formed in ‘metabolic pathways’.
- Mutagens.
- Genotype + Environment = Phenotype.

Genetic Variation and Change

- Crossing over, independent assortment and segregation during meiosis.
- Dihybrid inheritance.
- The effect of crossing over and linkage on dihybrid inheritance.
- Deviations from 'complete dominance', i.e. co-dominance and incomplete dominance.
- Lethal alleles and multiple alleles.
- Mutation as the ultimate source of variation.
- Natural selection.
- Migration.
- Genetic Drift.

The Course offered is NCEA Level 2 Biology.
HIBS is offering 20 credits this year

Unit	Achievement Standard	Description	Internal /External Examination	Credits
2.1	AS91153	Carry out a biological investigation with supervision	Internal	4
2.4	AS91156	Demonstrate understanding of life processes at the cellular level	External	4
2.5	AS91157	Demonstrate understanding of genetic variation and change	External	4
2.6	AS91158	Investigate a pattern in an ecological community, with supervision	Internal	4
2.7	AS91159	Demonstrate understanding of gene expression	External	4

Proposed Timeline for 2021

Week	Month	Date	Topic	Assessment
1	February	1-5	**Ecology (2.6)**	
2	February	9-12		
3	February	15-19		
4	February	22-26		
5	March	1-5		
6	March	9-12		Field trip 12/5
7	March	15-19		2.6 Report due 19/5 **(I)**
8	March	22-26		
9	March/April	29-1	**Cell Biology (2.4)**	
10	April	7-9		
11	April	12-16		
1	May	3-7		
2	May	10-14		
3	May	17-21		2.4 unit test (21/5)
4	May	24-28		
5	May/June	31-4	**Investigation (2.1)**	
6	June	8-11		2.1 report due 11/6 **(I)**
7	June	14-18		
8	June	21-25	**Gene Expression (2.7)**	
9	July	28-2		
10	July	5-9		
1	July	26-30		
2	August	2-6		
3	August	9-13		2.7 unit test (13/7)
4	August	16-20	**Genetic Variation and Change (2.5)**	
5	August	23-27		
6	Aug/Sept	30-3		
7	September	6-11		
8	September	13-17		
9	September	20-24		2.5 unit test 24/9
10	Sept/Oct	27-1	**Review/revision**	
1	October	18-22	**IEE exams**	
2	October	26-29		
3	November	1-5	**Review/revision**	
4	November	8-12		
5	November	15-19		
6	November	22-26	**NCEA L2 Biology 25 Nov 9.30am**	
7	Nov/Dec	29-3		