**IB Biology HL 2017-19**

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The aim of all IB programmes is to develop internationally minded people who, recognizing their common humanity and shared guardianship of the planet, help to create a better and more peaceful world.

IB learners strive to be:

**Inquirers** They develop their natural curiosity. They acquire the skills necessary to conduct

inquiry and research and show independence in learning*.* They actively enjoy

learning and this love of learning will be sustained throughout their lives.

**Knowledgeable** They explore concepts, ideas and issues that have local and global significance.

In so doing, they acquire in-depth knowledge and develop understanding

across a broad and balanced range of disciplines.

**Thinkers** They exercise initiative in applying thinking skills critically and creatively to

recognize and approach complex problems, and make reasoned, ethical

decisions.

**Communicators** They understand and express ideas and information confidently and creatively

in more than one language and in a variety of modes of communication. They

work effectively and willingly in collaboration with others.

**Principled** They act with integrity and honesty, with a strong sense of fairness, justice and

respect for the dignity of the individual, groups and communities. They take

responsibility for their own actions and the consequences that accompany

them.

**Open-minded** They understand and appreciate their own cultures and personal histories, and

are open to the perspectives, values and traditions of other individuals and

communities. They are accustomed to seeking and evaluating a range of points

of view, and are willing to grow from the experience.

**Caring** They show empathy, compassion and respect towards the needs and feelings of

others. They have a personal commitment to service, and act to make a positive

difference to the lives of others and to the environment.

**Risk-takers** They approach unfamiliar situations and uncertainty with courage and

forethought, and have the independence of spirit to explore new roles, ideas

and strategies. They are brave and articulate in defending their beliefs.

**Balanced** They understand the importance of intellectual, physical and emotional balance

to achieve personal well-being for themselves and others.

**Reflective** They give thoughtful consideration to their own learning and experience. They

are able to assess and understand their strengths and limitations in order to

support their learning and personal development.

**Course Description**

IB Biology HL is an intensive, college level course. We will meet for three lecture hours and 2 lab hours per week during your Junior and Senior years. This course provides an in-depth understanding of structure and function in cellular to global hierarchies and the universal features that exist in biologically diverse ecosystems. It is a two-year course. A student who earns a passing grade in IB Biology HL will earn one credit per year. Junior year an additional half credit can be earned for a passing grade in the lab section (See student handbook for weighting policy.) At the end of the second year (IB Biology III HL) IB students will take the IB exams.

**Prerequisites**

Biology I-H, Chemistry I-H, Physics I-H(suggested)

**IB Program**

The IB Biology Higher Level course consists of the core material, additional higher level material (more detailed coverage of core topics) and one option. The attached sequence of topics shows the core material, the additional higher level material and the option that will be covered. The option studied is subject to change, but is generally option D (Human Physiology).

**External Assessment**

This is more commonly referred to as the IB exams. You will take the IB exams after successful completion of the two year course. Your performance on the IB exams counts as 80% of your IB final assessment.

|  |  |  |  |
| --- | --- | --- | --- |
| Component | Overall Weighting (%) | Duration (hrs) | Format |
|  |  |  |  |
| Paper 1 | 20 | 1 | x-choice (Core +AHL) |
| Paper 2 | 36 | 2.25 | DBQ and extended response (Core +AHL) |
| Paper 3 | 24 | 1.25 | Short answer and extended response (Core+ AHL options) |

**Internal Assessment (IA)**

This is more commonly referred to as laboratory investigation. Your senior year you will be required to turn in a lab report for formal internal assessment. This lab will be assessed according to IB standards and will be submitted to the IBO for review. Internal assessment counts as 20% of your final assessment.

**Group 4 Project**

During your second year, you and your peers will analyze a topic or problem which can be investigated in each of the science disciplines. More details about this project will be given at a later date.

**Textbooks**

*Biology: IB Diploma Progamme*. Oxford, 2014

**Materials Needed**

3-ring binder(for lab), loose-leaf paper, additional notebook(class notes),

 ink pens, pencils, scientific calculator

**Homework**

Homework is an extremely important part of this course. Assignments are chosen to provide practice and to check for understanding of newly introduced material. Homework will be assigned daily. (Note that this includes daily study and work on topic cards). Studies suggest that a typical IB student should expect to spend approximately 3 hours a week on homework per subject.

* **Join Google Classroom: dl7vwuy**
* Each set of topic cards are due on quiz/test day and count as a homework grade.
* Quizlet: Calvin\_Smith155; IB Biology Class 2019; https://quizlet.com/join/4xau3cyHv
* Quiz Cards Submitted on Test day receives 75%
* Quiz/Test Cards Submitted up to a week late receives 50%
* One week post test date Zero credit
* Most weeks will involve answering a Discussion Board question posted to the class.
	+ http://shsibbiology.freeforums.net.
	+ These are always due on Monday.
	+ Due to the nature of the assignment, no late submissions will be allowed

**Quizzes**

Regular quizzes will serve as a preview for major tests. Pop quizzes may be given on reading assignments and/or cards assigned for homework.

**Major Tests**

Major tests may cover several chapters of the book and usually cover numerous assessment statements.

**Make-up Policy**

In the event of absence, the make-up policy as stated in the SHS handbook will be enforced. Making up any missed work is the student’s responsibility. Arrangements should be made with me on the day that you return to class. Make-up tests will be given at my convenience. Failure to adhere to this policy will result in a zero on the assignment(s). Students missing class should access the class website where classroom assignments are posted daily.

**IB Biology Grading(Junior Year)**

* Test 50%
* Quizzes 25%
* Homework 25%

**IB Biology Lab Grading (Junior Year)**

Grades will be earned through prelab quizzes, informal lab reports, formal lab reports, end of quarter tests and homework assignments. Assignments will be weighted based on level of difficulty. (ex. A formal lab report would be weighted heavier than where data had been collected, processed and a few questions answered.)

**IB Biology Grading (Senior Year)**

* Test 40%
* Quizzes 20%
* Homework 20%
* Lab 20%
* The IA will be your 3rd quarter lab grade
* Preliminary G4 assignments will count as minor lab grades. Final project will be the 4th quarter lab grade.

**Course Expectations**

Students are expected to complete all daily assignments accurately, submit all assignments on time, study adequately for quizzes and major tests, participate in learning and ask appropriate questions, bring all necessary materials to class, and give their best effort in all work.

**Course Outline**

Junior Quarter 1

Chemistry 5hr

2.1 Molecules to Metabolism 2

2.2 Water 1

2.3 Carbohydrates and Lipids 2

Chemistry II(Proteins) 9hr

2.4 Proteins 2

2.5 Enzymes 3

8.1 Metabolism 4

The Cell 12hr

1.1 Introduction to cells 2

1.2 Ultrastructure of Cells 3

1.3 Membrane Structures 2

1.4 Membrane Transport 3

1.5 The Origin of Cells 2

Photosynthesis 8hr

2.9 Photosynthesis 3

8.3 Photosynthesis 5

Junior Quarter 2

Cell Respiration 8hr

2.8 Cell Respiration 3

8.2 Cell Respiration 5

DNA, RNA(Nucleic Acids) 14hr

2.6 Structure of DNA and RNA 2

2.7 DNA Replication, Transcription, and Translation 3

7.1 DNA Structure and Replication 3

7.2 Transcription and Gene Expression 3

7.3 Translation 3

Cell Division 9hr

1.6 Cell Division 3

3.3 Meiosis 3

10.1 Meiosis 3

Junior Quarter 3

Genetics 15hr

3.1 Genes 3

3.2 Chromosomes 3

3.4 Inheritance 3

3.5 Genetic Modification and Biotechnology 3

10.2 Inheritance 3

Ecology 12hr

4.1 Species, Communities, and Ecosystems 3

4.2 Energy Flow 3

4.3 Carbon Cycling 3

4.4 Climate Change 3

Evolution and Biodiversity 14hr

5.1 Evidence for Evolution 3

5.2 Natural Selection 3

5.3 Classification of Biodiversity 3

5.4 Cladistics 3

10.3 Gene Pools and Speciation 2

Junior Quarter 4

Plant Biology 13hr

9.1 Transport in the Xylem of Plants 3

9.2 Transport in the Phloem of Plants 3

9.3 Growth in Plants 3

9.4 Reproduction in Plants 4

Circulation 8hr

6.2 The Blood System 3

D.4 The Heart 5

Gas Exchange 7hr

6.4 Gas Exchange 3

D.6 Transport of Respiratory Gases 4

Digestion 11hr

6.1 Digestion and Absorption 3

D.2 Digestion 4

D.1 Human Nutrition 4

Senior Quarter 1

Liver and Kidney 12hr

11.3 The Kidney and Osmoregulation 4

D.3 Functions of the Liver 4

D.5 Hormones and Metabolism 4

Nervous System and Movement 8hr

6.5 Neurons and the Synapse 4

6.6 Hormones, Homeostasis, and Reproduction 4

Senior Quarter 2

Immune System 7hr

6.3 Defense Against Infectious Disease 3

11.1 Antibody Production and Vaccination 4

11.2 Movement 4

Reproduction 8hr

11.4 Sexual Reproduction 4

6.6 Hormones, Homeostasis, and Reproduction 4

Senior Quarter 3 and 4

Review Everything

Practice Papers