

IB Biology 11 HL Syllabus



Mrs. Fagen
Room A-3

Overview:

The IB Diploma Programme (DP) is a rigorous, academically challenging and balanced programme of education designed to prepare students aged 16 to 19 for success at university and life beyond. The DP aims to encourage students to be knowledgeable, inquiring, caring and compassionate, and to develop intercultural understanding, open-mindedness and the attitudes necessary to respect and evaluate a range of viewpoints. Approaches to teaching and learning (ATL) within the DP are deliberate strategies, skills and attitudes that permeate the teaching and learning environment. In the DP students develop skills from five ATL categories: thinking, research, social, self-management and communication. To ensure both breadth and depth of knowledge and understanding, students must choose at least one subject from five groups: 1) their best language, 2) additional language(s), 3) social sciences, 4) experimental sciences, and 5) mathematics. Students may choose either an arts subject from group 6, or a second subject from groups 1 to 5. At least three and not more than four subjects are taken at higher level (240 recommended teaching hours), while the remaining are taken at standard level (150 recommended teaching hours). In addition, three core elements—the extended essay, theory of knowledge and creativity, action, service—are compulsory and central to the philosophy of the programme. These IB DP subject briefs illustrate four key course components. I. Course description and aims II. Curriculum model overview III. Assessment model IV.

Course description and aims Biology is the study of life. The vast diversity of species makes biology both an endless source of fascination and a considerable challenge. Biologists attempt to understand the living world at all levels from the micro to the macro using many different approaches and techniques. Biology is still a young science and great progress is expected in the 21st century. This progress is important at a time of growing pressure on the human population and the environment. By studying biology in the DP students should become aware of how scientists work and communicate with each other. While the scientific method may take on a wide variety of forms, it is the emphasis on a practical approach through experimental work that characterizes the sciences. Teachers provide students with opportunities to design investigations, collect data, develop manipulative skills, analyse results, collaborate with peers and evaluate and communicate their findings. Through the overarching theme of the nature of science, the aims of the DP biology course are to enable students to: 1. appreciate scientific study and creativity within a global context through stimulating and challenging opportunities 2. acquire a body of knowledge, methods and techniques that characterize science and technology 3. apply and use a body of knowledge, methods and techniques that characterize science and technology 4. develop an ability to analyse, evaluate and synthesize scientific information 5. develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities 6. develop experimental and investigative scientific skills including the use of current technologies 7. develop and apply 21st

century communication skills in the study of science 8. become critically aware, as global citizens, of the ethical implications of using science and technology 9. develop an appreciation of the possibilities and limitations of science and technology 10. develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge. II.

Curriculum model overview Component Recommended teaching hours:

- **Core** 1. Cell biology 2. Molecular biology 3. Genetics 4. Ecology 5. Evolution and biodiversity 6. Human physiology
- **Additional higher level** 7. Nucleic acids 8. Metabolism, cell respiration and photosynthesis 9. Plant biology 10. Genetics and evolution 11. Animal physiology
- **Option** (Choice of one out of four) A. Neurobiology and behaviour B. Biotechnology and bioinformatics C. Ecology and conservation D. Human physiology

Practical scheme of work Prescribed and other practical activities Individual investigation Group 4 project The group 4 project The group 4 project is a collaborative activity where students from different group 4 subjects, within or between schools, work together. It allows for concepts and perceptions from across disciplines to be shared while appreciating the environmental, social and ethical implications of science and technology. It can be practically or theoretically based and aims to develop an understanding of the relationships between scientific disciplines and their influence on other areas. The emphasis is on interdisciplinary cooperation and the scientific processes III.

Assessment model It is the intention of this course that students are able to fulfill the following assessment objectives:

1. Demonstrate knowledge and understanding of:

- facts, concepts, and terminology
- methodologies and techniques
- communicating scientific information.

2. Apply:

- facts, concepts, and terminology
- methodologies and techniques
- methods of communicating scientific information.

3. Formulate, analyse and evaluate:

- hypotheses, research questions and predictions
- methodologies and techniques
- primary and secondary data
- scientific explanations.

4. Demonstrate the appropriate research, experimental, and personal skills necessary to carry out insightful and ethical investigations.

Course Basics:

Google Classroom: We will rely heavily on the class website. This site will have postings from our class lessons such as outlines, PowerPoint slides, review, and supplemental material mentioned in lecture. Announcements and/or emails will be sent regarding student concerns on this site. It is your responsibility to check it and your school email account regularly.

Posted Resources: Important class resources will be posted to the course google classroom website. This includes lecture slides, additional reading, handouts, and study guides. You are responsible for keeping up with the material posted to the website. Documents and resources will be posted throughout the course as we progress through the curriculum.

Office Hours: These are hours that I set aside each week to meet with you one-on-one or in small groups (bring a friend). You get to direct these conversations -- we can talk about whatever you want (the course, study skills, etc.) I will be available every day after school 2:00 - 2:45 via a google meet. If you need a different time, you just need to make arrangements with me ahead of time.

Email: I will make every effort to respond to your emails quickly (within 24-48 hours).
afagen@shoreregional.org

Your classmates: Identifying at least one study-buddy will serve you well! This classmate should be your go-to person when you have a question after class. Are you confused about an assignment requirement? What pages are you supposed to read for tomorrow? When's that assignment due?
Assignments (In and Out-of-Class Activities): The purpose of these assignments is to keep you thinking about biology both in and out of the classroom. They are not meant to be busy work. Rather, each assignment is meant to help you sharpen your written, oral, and reasoning skills to help your mind stay focused and engaged on the topics we discuss in class. **Late homework will receive zero credit, even though you can still do them for practice (I drop your two lowest homework grades). Late labs and projects will lose 10 points per day late.**

Academic Integrity: If it is found that you violated the school's academic integrity policy, you will receive a zero for the assignment and your work will be submitted to the academic integrity committee. Violations are simply not acceptable and I will have a zero tolerance policy.

DIGITAL ETIQUETTE:

This course will require you to use your chromebook during class time. Please be respectful of your classmates and restrict your use of digital devices to course content. Please be respectful of your own learning and realize that those around you will be distracted if you are off-task. If I see that you or your peers are distracted, I will ask you to put your devices away. There will be times when you have completed your work but your peers have not. I ask that you assist your peers when appropriate or use the time to review your notes while you wait. You will learn more if you concentrate on the course while you are here and your classmates will thank you for not impeding their ability to learn.

How to Study and Succeed in Anatomy & Physiology

Attend class. No, seriously: do not skip class. And when you are in class plan to limit your electronic distractions (see digital etiquette section above).

Be disciplined: Studying actively means avoiding distractions such as texts, music, television and social media. If necessary, set an alarm and study for 30 minutes and take a 10 minute break. Use the class schedule to make a study calendar for yourself (e.g. what will you study when and for how long?).

Read and write every day: Read over your notes before coming to class. Every day after class, without looking at your notes, answer the following questions: What did I learn about in class today? Try and recall as much as possible from the lesson without looking at your notes. Identify any gaps in your understanding and formulate questions. Then, look through your lecture notes. What main points did you miss? What examples are especially important and why? Practice making connections between the concepts covered in class (in one day and between days) and those in the textbook.

Practice: Once you have completed the assigned readings and revised your notes practice using your knowledge to answer the homework questions. Review your notes after each class. How long will this take? Set aside 15 minutes and make this a habit; it is guaranteed to pay off. WARNING: “Reading over your notes” is NOT studying. You need to “quiz” yourself in some way to see what you are retaining from your “reading”. Have you tried drawing the diagrams? Have you constructed flow charts or a map that links concepts? Have you tried explaining the concept aloud? Have you made paper cut-outs and tried acting out the process? Have you compared and contrasted major concepts/processes that you have learned? Review your course material multiple times in multiple ways! The more times you review biology, the better it will stick. 1) read it in the book 2) discuss it in class 3) review your notes 4) review all powerpoints 5) make flashcards and 6) teach a friend

Get Help: If you are having trouble please ask for help! You may want to speak to me before or after class. Email is also a good way to communicate; you may not get a reply immediately but I do read all my emails and I will respond as quickly as possible. Here are some additional helpful resources for you. Discuss material and concerns with me during office hours, after class, or by email. You need to come see me well in advance of an exam. Come see me after the first exam if you did not do well. It will be very difficult for me to give you helpful suggestions if you wait until you did poorly on multiple exams!

Be Organized: The best way to stay organized is to have a plan, and execute it. You will generate a lot of paper (actual or digital) in this class (lecture notes, vocabulary lists, test questions, reading questions, etc.). During the first week of class, figure out a way to keep all of your documents together in one place in order to reference them quickly.

Grading:

Homework/Classwork	15%
Labs/Projects	25%
Quizzes	25%

Tests

35%

Class Code of Conduct:

1. Be Respectful
no hats, raise hand, respect classmates, respect teacher, no writing on desk, respect school property, don't curse
2. Be Prepared
come to class with a pen/pencil and notebook
3. Be Punctual
be in class before the second bell
4. Be Responsible
if absent find out what you missed and get it turned in, no late work accepted
5. Be Safe
use caution and common sense in the laboratory

Materials:

- Textbook:
- 2 inch 3 ring binder
- Colored Pencils
- Highlighters
- Tab Dividers for Binder
- Chromebook