

Anatomy and Physiology 12 (4 credits)

Course Outline

2021-2022

Teacher: Mr. D. Hammond

David.hammond@sd8.bc.ca

250 825 2168

Welcome to Anatomy and Physiology 12!

This course will allow you to explore and better understand the living world. You will explore human anatomy and physiology from the molecular level to the organ system level. Throughout this course, you will continue to strengthen Core Competencies and build new Curricular Competencies as you explore interesting course content which relates to three Big Ideas as set by the BC Curriculum

[\[https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology\]](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology). The three Big Ideas are:

- **Homeostasis** is maintained through physiological processes.
- **Gene expression**, through protein synthesis, is an interaction between genes and the environment.
- **Organ systems** have complex interrelationships to maintain homeostasis.

Assessment

Throughout this course you will complete a variety of activities, each activity will include instructions and expectations.

- **Learning Guides:** For each unit, you will complete a learning guide which must be submitted before writing the unit test. All submissions **MUST** be very neat and well organized. If you can't figure out a question, you should be researching it, then asking for help. Show **ALL** work as is explained in the lessons.
- **Projects:** For each unit, you will also choose and complete an inquiry project before writing the unit test. Projects allow you to make some choices on how you wish to deepen your understanding of a topic and to see how it fits into your real world. As you work through units look for projects that will enhance your understanding in areas of interest and/or weakness.
- **Tests** are "closed book" and require supervision

How To Be Successful

1. Actively work through each lesson, trying examples and reflecting on material.
2. Use the Learning Guide as your tool for documenting your understanding. Lay it out neatly and in a well organized manner.
3. Make sure you understand any test question you get wrong. If you can't figure it out - **ASK!**
4. One-on-One Help is available! If you need assistance, please don't hesitate to contact me to ask a question or to set up a one-on-one appointment. We can do this in person or we can meet online using Zoom. Remember, I am your teacher and I'm here to help.

Substantive Activity (Molecules)

In order to be officially activated in this course you must first complete a substantive activity. For this activity you will complete the learning guide, project and quiz for unit 1: "Molecules". In this unit, you will be introduced to the concept of homeostasis; you will find out why water plays an important role in biological systems; you will discover the importance of pH balance and the effects of changes in pH on the human body; and you will be introduced to four major types of biological molecules: carbohydrates, lipids, proteins and nucleic acids. This substantive activity covers a variety of curriculum outcomes such as:

Big Ideas

Content

Curricular Competencies

- **Homeostasis** is maintained through physiological processes.
- Biological molecules
- **feedback loops** and regulation of the body's internal environment
- Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest
- Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world
- Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data (qualitative and quantitative)
- Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies
- Describe specific ways to improve their investigation methods and the quality of their data
- Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations

Resources

- Western Canada Learning Network "Anatomy and Physiology 12"
- Online resources

Course Evaluation

Final Grade Course Calculator

Learning Guides (Including 1.11% substantive activity) 10% X 0.10 =

Projects (Including 1.67% substantive activity) 20% X 0.15 =

Unit Tests (Including 4.44% substantive activity) 40% X 0.40 =

Midterm Exam 15% X 0.15 =

Final Exam 15% X 0.20 =

Final Grade

--

Course Organization

The course content is divided into 9 Units as shown below with suggested times. Note that once the substantive assignment is complete, the time allotted for the remainder of the course is 16 weeks.

Unit	Suggested time (1 week = 7.5 hours)	Assessments	Weight	Mark
1. Molecules	2 weeks	Learning Guide (Substantive Activity)	1.11%	
		Project (Substantive Activity)	1.67%	
		Test (Substantive Activity)	4.44%	
2. Cell Structures	2 weeks	Learning Guide	1.11%	
		Project	1.67%	
		Test	4.44%	
3. DNA	2 weeks	Learning Guide	1.11%	
		Project	1.67%	
		Test	4.44%	
4. Digestive System	2 weeks	Learning Guide	1.11%	
		Project	1.67%	
		Test	4.44%	
5. Respiratory System	2 weeks	Learning Guide	1.11%	
		Project	1.67%	
		Test	4.44%	
			Midterm Exam	15%
6. Circulatory System	2 weeks	Learning Guide	1.11%	
		Project	1.67%	
		Test	4.44%	
7. Nervous System	2 weeks	Learning Guide	1.11%	
		Project	1.67%	
		Test	4.44%	
8. Excretory System	2 weeks	Learning Guide	1.11%	
		Project	1.67%	
		Test	4.44%	
9. Reproduction	2 weeks	Learning Guide	1.11%	
		Project	1.67%	
		Test	4.44%	
			Final Exam	20%
			Final Grade	100%