



Course: Anatomy & Physiology 12

Course Length: 10 months (approx 100 hours)

Teacher: Anthony Tran

Email: Anthony.Tran@burnabyschools.ca

Introduction to Anatomy & Physiology 12:

I hope you see great success in this Anatomy & Physiology 12 course. As part of ensuring your success, I have a few things to point out in this introductory unit. Before getting started you will want to read the course instructions for students. Print this page and include it in your course notes.

Course Learning Activities:

The course is broken down into four modules containing fifteen units of study.

Module	Unit	Topic	Completed
Module 1	1	1.1: Introduction to Cell Compounds	
		1.2: Water	
		1.3: pH	
		Unit 1 Assignment	
		Unit 1 Quiz	
	2	2.1: Introduction to Biological Molecules	
		2.2: Carbohydrates	
		2.3: Lipids	
		2.4: Proteins	
		2.5: Nucleic Acids	
		Unit 2 Assignment	
	3	3.1: Introduction to Cell Structures	
		3.2: Cell Structure/Function	
		3.3: Cell Structural Interdependence	
		Unit 3 Assignment	
		Unit 3 Quiz	
		Module 1 Exam	
Module 2	4	4.1: Introduction to Cell Membranes	
		4.2: Cell Membrane Function	
		Unit 4 Assignment	
		Osmosis Lab	
		Unit 4 Quiz	

	5	5.1: Introduction to DNA		
		5.2 : DNA		
		Unit 5 Assignment		
		DNA Extraction Lab		
		Unit 5 Quiz		
	6	6.1: Introduction to Protein Synthesis		
		6.2: Protein Synthesis		
		Unit 6 Assignment		
		Unit 6 Quiz		
	7	7.1: Introduction to Enzymes		
		7.2: Enzymes		
		Unit 7 Assignment		
		Liver Enzyme Lab		
		Unit 7 Quiz		
			Module 2 Exam	
Module 3	8	8.1: Introduction to the Digestive System		
		8.2: Digestive System		
		Matching Digestive Structures Activity		
		Unit 8 Assignment		
		Unit 8 Quiz		
	9	9.1: Pulmonary and Systematic Circulation		
		9.2: Fetal Circulation		
		9.3: Components of Blood		
		9.4: Lymphatic System		
		9.5: Capillary Fluid Exchange		
		Unit 9 Assignment		
		Unit 9 Quiz		
	10	10.1: Introduction to Heart Structure and Function		
		10.2: The Heart		
		Unit 10 Assignment		
		Unit 10 Quiz		
	11	11.1: Respiratory System		
		Unit 11 Assignment		
		Unit 11 Quiz		
			Module 3 Exam	
	Module 4	12	12.1: Nervous System	
			Unit 12 Assignment	
			Unit 12 Quiz	
		13	13.1: Divisions of the Nervous System and Brain	
Unit 13 Assignment				
Unit 13 Quiz				
14		14.1: Urinary System		
		Unit 14 Assignment		
		Unit 14 Quiz		
15		15.1: Reproductive System		
		Unit 15 Assignment		
		Unit 15 Quiz		

		Module 4 Exam	
Final		Final Exam	

Resources:

A textbook is no longer necessary for this course as the student notes will provide you with all the information you will need. However if you require a textbook as an extra resource for this course “Inquiry into Life”, Sylvia S. Mader, edition 10th through 13th are all fine. If you are **not** associated with a school you can obtain this textbook from your DL School with a \$100.00 refundable deposit. There is also additional reading available with the use a search engine if you require more information.

Computer Requirements:

This course requires:

Browser	Internet Explorer, Google Chrome, Firefox (Recommended)
Internet	Cable or ADSL strongly recommended/56k a minimum
Plug-in's	Adobe Reader, Shockwave, and Real Player

Grading:

Your grade for this course will be calculated as follows:

Unit Assignments	25%
Unit Quizzes	20%
Module Exams	30%
Labs	15%
Final Exam	10%

Module exams may include material from ANY part of the course completed prior to the module exam. However, the large majority of the material contained on Module Exams will be directly related to the units in the given module. Be sure to complete the 4 module exams after each section of unit quizzes. The module exams are scheduled into the course at the appropriate times to write them. **All exams are invigilated exams that are arranged with the course instructor.**

There is no longer a provincial exam for this course as most institutes no longer require the provincial exam. I would suggest that you check with your institute to be sure that it is not required. Before, the provincial exam for scholarships or university entrance would constitute 40% of your final grade with your course grade making up the other 60% of your final mark.

To Remain in the Virtual Program:

You must meet the following criteria:

- 1) You must show that you are making progress through the course material by regularly completing assignments.
- 2) You must be completing the Unit Quizzes and exams on a regular basis.

Working through the Program:

Print off the student notes and fill them in as you follow along with the course material. The student notes will become your study material. Once you have completed the student notes, complete the unit worksheets and labs. When you are ready, schedule a time with the instructor to write your module exam at the Burnaby Online testing centre.

Getting Help:

The best course of action is to either come into the school, call me, or send me an e-mail with your concerns and I will contact you as soon as possible.

Submitting Assignments:

Open the assignments in a word program and complete them **on the computer**. Submit the assignments within the assignment submission location in the Moodle program.

Best of luck with the program.

B.C. Curriculum

The B.C. Ministry of Education Anatomy & Physiology 12 Curriculum Guide is built around 3 Core Big Ideas:

BIG IDEAS

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.

Learning Standards

SCIENCE – Anatomy and Physiology Content – Elaborations

- **biological molecules:**
 - water, acids, bases, buffers
 - dehydration and synthesis reactions
 - organic molecules: carbohydrates, lipids, proteins, nucleic acids, ATP
- **metabolism:**
 - anabolism and catabolism
 - ATP production and utilization
 - models and regulation of enzymatic reactions (e.g., lock-and-key model)
- **enzymes:**
 - substrate, coenzyme, activation energy
 - regulation of enzyme activity (e.g., allosteric inhibition)
- **feedback loops:**
 - negative:
 - maintaining normal body temperature
 - normal CO₂ and glucose levels in blood
 - positive:
 - temperature regulation (heat stroke, hypothermia)
 - CO₂ levels in blood (acidosis)
 - oxytocin in childbirth
 - blood clotting
- **transport across a cell membrane:**
 - structure of the plasma membrane
 - selective permeability
 - diffusion, osmosis, facilitated transport, active transport, endocytosis, exocytosis
- **gene expression:** protein synthesis
- **structure and function of all cells:** structural proteins, hormones, enzymes
- **genomics:** Human Genome Project, 1000 Genomes Project, 1000 Plant Genomes Project, personal genomics
- **biotechnology:** cloning, recombinant DNA, GMOs, transgenic organisms, genetic modification, gene therapy
- **organization:** molecules, organelles, cells, tissues, organs, organ systems, organisms
- **organ systems:** nervous, endocrine, digestive, cardiovascular, lymphatic/immune, respiratory, urinary, reproductive
- **lifestyle differences:** dietary plans, exercise, sleep, smoking, salt intake, alcohol consumption, drugs, vaccinations, contraception, fertility drugs
- **holistic approach:** health care that integrates mind, body, and spirit with community
- **disease:** may occur when one or more body systems fail to maintain homeostasis (e.g., ulcers, hypertension, lactose intolerance, diabetes, HIV-AIDS)