**Course Outline**

**Schedule:** Semester 2, period 2

**Teacher contact:** Marie-Eve Owen, room 141, marie-eve.owen@yesnet.yk.ca

**Website:** [m-eowen.weebly.com](http://m-eowen.weebly.com/)

**Text book:** Anatomy and Physiology (Western Campus)

**Reference:** <https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology>

**Required:** Proficiency in Science 10**,** abinder with paper & dividers, a pen, pencil, eraser, highlighters.

**Student Behaviour:** Follow laboratory safety rules, be responsible for any missed material, show respect.

**Course Description:** Anatomy and Physiology 12 focuses on the relationships between form and function of body systems. Students will explore the macro and micro aspects of these interactions, and how body processes integrate to maintain homeostasis.

**Assessment:**

Students are offered a wide variety of methods to demonstrate their learning, such as goal setting, observation skills, self& peer assessments, biological drawings, projects, posters, models, written lab reports, written quizzes, and written tests. As much as possible, assessment will involve both teacher and student reflections (Assessment for Learning). Plagiarism and cheating will result in a re-do or a grade of zero.

**Evaluation:** 10% Assignments, Homework

30% Projects, Lab Reports

45% Tests and Quizzes

15% FINAL EXAM\*

**Learning Schedule:**

Unit 1: Cell Biology Weeks 1-3

* *Cell Structure, Cell* *Compounds* and *Biological* *Molecules DNA Replication*

Unit 2: Cell Biology Weeks 4-7

* *Protein* *Synthesis, Transport* *Across* *Cell* *Membrane , Enzymes*

Unit 3: Human Biology Weeks 8 – 18

* *Digestive* *System*
* *Circulatory System*
* *Respiratory System*
* *Nervous System*
* *Urinary System*
* *Reproductive System*

**Labs or Projects:**

* Cell Structures
* DNA Replication or Mutation
* Protein Synthesis OR Transport Across Cell Membranes
* The Circulatory System
* The Nervous System

**Curricular Outcomes: Resource:** https://curriculum.gov.bc.ca

*Big Ideas:*

1. [Homeostasis](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology) is maintained through physiological processes.
2. [Gene expression](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology), through protein synthesis, is an interaction between genes and the environment.
3. [Organ systems](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology) have complex interrelationships to maintain homeostasis.

Students are expected to know the following curricular content:

* [biological molecules](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology)
* [metabolism](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology#;) and [enzymes](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology#;)
* [feedback loops](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology) and regulation of the body’s internal environment
* [transport across a cell membrane](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology)
* DNA:
* the cell’s genetic information
* replication
* [gene expression](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology)
* proteins and their relationship to the [structure and function of all cells](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology)
* [genomics](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology#;) and [biotechnology](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology#;)
* micro to macro [organization](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology)
* [organ systems](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology):
* structure and function
* structural and functional interdependence
* maintenance of homeostasis
* [lifestyle differences](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology) and their effects on human health
* [holistic approach](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology) to health
* [disease](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology) as an imbalance in homeostasis

Students are expected to be able to do the following curricular competencies:

#### [Questioning and predicting](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology): Make observations aimed at identifying personal questions about the natural world.

#### [Planning and conducting](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology): Apply concepts of accuracy and precision to data (significant figures, uncertainty, scientific notation, correct units).

#### [Processing and analyzing data and information](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology): Construct, analyze, and interpret graphs, models, and/or diagrams to analyze cause-and-effect relationships in a gene expression project.

#### [Evaluating](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology): Consider social, ethical, and environmental implications of the investigative findings.

#### [Applying and innovating](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology): Contribute to finding solutions to problems at a local and/or global level through inquiry in the Homeostasis project.

#### [Communicating](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology): Communicate scientific information by constructing evidence-based arguments and scientific language in the organ systems research project.