

BIOL 225 sections A01 and A02
CRN 10323 / 10324
Principles of Cell Biology
Fall 2019

Class time and location :

A01: TWF 10:30 - 11:20, Bob Wright Centre B150

A02: TWF 1:30 - 2:20, Bob Wright Centre A104

Instructor s:

Dr. Doug Briant

Office hours : Tues, Wed, Fri. 2:30-3:30

Room : Petch182

e-mail : dbriant@uvic.ca

Kim Curry

laboratory coordinator

contact information and hours to be announced in laboratory

Required Materials

Textbook : % H F N H U ¶ V : R U O N ¶ R I W K H & H O O

Tentative Class Schedule:

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Learning Objectives

Topic 1a – Discovery of Cell, a history

LEARNING OBJECTIVES: early experiments surrounding the discovery of cells are introduced. Students will learn about the basic properties of cells.

Topic 1b – Basic properties and strategies of cells

LEARNING OBJECTIVES: the issues surrounding visualization of cells, which are generally smaller than the naked eye can observe, will be introduced. Students will be taught about various microscopic techniques and they will be able to apply this knowledge to decide which type of microscopy will be best suited to a particular application.

Topic 1c - Cell Culture

LEARNING OBJECTIVES: students will be introduced to the historical figures and early experiments performed in the development of cell culture techniques. They will have an understanding of challenges surrounding the culturing of animal cells. Students will also learn to recognize the advantages and disadvantages of working with animal cells in culture.

TOPIC 2: Cell Chemistry and Biomolecules

LEARNING OBJECTIVES: in this topic, the building blocks of the cells will be introduced. Students will be expected to know how these blocks are assembled into functional macromolecules. Additionally, the importance and type of chemical bonds holding these molecules together will be explored.

TOPIC 3: Cells and Organelles

LEARNING OBJECTIVES: In this section, students will be introduced to the main functions of the organelles. Students will be expected to know the major functions of each organelle, and understand the adaptations each organelle has gained to maximize their ability to carry out these functions.

TOPIC 4: Membrane Structure, Function and Chemistry

LEARNING OBJECTIVES: membrane composition and structure is important for a cell. How does the membrane composition affect the membrane?

TOPIC 5: Diffusion and Membrane Transport

LEARNING OBJECTIVES: membranes serve as permeability barriers that demarcate the cell. Students will learn that this permeability is variable. They will also understand the energetic forces associated with concentration gradients that form across a membrane. Finally, transport of impermeable molecules across a membrane will be

discussed, and students will be expected to understand the basic mechanism of these transporters as well as their energetic requirements.

TOPIC 6: Cytoplasmic Membrane Systems

LEARNING OBJECTIVES: movement between organelles, or between organelles and the exterior of the cell, is often mediated by vesicles. The importance and significance of

INFORMATION AND POLICIES

1. 7KH 'HSDUWPHQW RI %LRORJ\ XSKROGV DQG HQIRUFHV WKH plagiarism and cheating. These policies are described in the current University Calendar. All students are advised to read this section.
2. Cell phones, computers, and other electronic devices must be turned off at all times unless being used for a purpose relevant to the class. Students having a cell phone, tablet, or computer on their person during an exam will be assumed to have it for the purpose of cheating.
3. Any recordings of lectures may only be performed with written permission of the

Conversion of marks to final letter grades :