BIOL 225 (CRN 31130)
Principles of Cell Biology
Summer 2022

Instructors:

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Territorial Acknowledgement:

We acknowledge and respect the lək̓ʷəŋən peoples on whose traditional territory the university stands and the Songhees, Esquimalt and W̱SÁNEĆ peoples whose historical relationships with the land continue to this day.

Lecture time and location*:*

Mon., Tues., Thurs., 12:30 – 2:20, ECS 104

Office Hours and Extra Help*:* I will **NOT** be holding face-to-face meetings. I will be available online via Zoom (link on Brightspace) on Mondays from 11:00 – 12:00. Outside of these times I can be reached via email.

Course Delivery*:* the course will be delivered face-to-face, the lectures will be recorded and posted for asynchronous viewing (warning: if technicag0 g0 Gs1 en-14(o)13(r)-3( )-4(a4re)3(d)]T

Topic Quizzes: three are 8 topic quizzes available for self-assessment purposes. They are due at 4pm on June 23 (the last day of class). If you get at least one question correct on a quiz, you will receive a 0.25% participation mark!

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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 how these blocks are assembled into functional macromolecules. This will include analysis of the different types of chemical bonds holding molecules together. Membrane composition and function will be explored, and students will be expected to understand how membranes serve as permeability barriers that demarcate the cell. 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 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 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 vesicular trafficking, as well as the mechanism, will be described in this section.

TOPIC 5: Signalling 1 – Synaptic Signalling

LEARNING OBJECTIVES: in this section, we will describe how impermeability of the cell membrane to ion BDC q0.0.17 Tm(esi)6(cul)6(ar)62 792il.13 Tm0 g0 ETQ EMC /P <</MCID4eam of the cell

EVALUATION

COURSE INFORMATION AND POLICIES

1. The Department of Biology upholds and enforces the University's policies on academic integrity. 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 during live class sessions unless being used for the purpose of connecting and engaging with the class.

9. Requests for review/remark of a midterm exam must be made within one week of the exam being returned.

10. The instructor reserves the right to use plagiarism detection software or other platforms to assess the integrity of student work.

11. Supplemental exams or assignments will not be offered to students wishing to upgrade their final mark.

12. Anonymous participation in onli