This syllabus is a general representation of the course as previously offered and is subject to change.

BIOL 362 – Cellular Physiology

General Course Syllabus (as of June 2019)

About the Course:

Course Description: Biology 362 is a 2-credit course that is meant to build upon the knowledge acquired in previous cell biology & physiology courses and provide students an opportunity to explore topics of interest around the cytoskeleton, cell dynamics, and regulation of cellular activities. Preference will be given to Majors or Honours students in Biology and Honours Biophysics.

Course Format: Lecture: this course uses a combination of lecture, case study and personal inquiry to explore cell physiology. There will be a great deal of group work in this course, including a term project. This course is designed to generate lots of discussion and group interaction, which means students should expect to participate in this course.
Credits: 2
Pre-requisites: BIOL 200 and one of APBI 312, APBI 351, BIOL 260, BIOL 351, BIOL 352, BIOL 361, FRST 311.

Course Learning Objectives:

By the end of the course students should be able to:

- Develop a deeper understanding of how the different components of the cell are integrated together and involved in cellular function.
- Integrate concepts and data to apply in novel situations through analysis and problem solving.
- Construct theoretical models of biological processes that are based on scientific evidence and logical reasoning.
- Develop teamwork skills through collaborative learning projects.
- Discover cell physiology in a way that integrates classroom learning with “the real world.”

Textbooks and Additional Resources:

- **Course Website:** URL canvas.ubc.ca
- **i>Clickers:** Participation marks will be assessed based on a combination of i>Clickers and other in-class activities, as well as participation in online forums, as required
- **Textbook:** Alberts et al. Molecular Biology of the Cell, 6th ed. 2014, Garland Publishing. (Recommended, not required. Search for cheaper options)

Evaluation:

Assessment	Weight
Midterm exam:	20%
Final exam:	35%
Group term project:	25%
In-class Case Studies:	15%
Participation:	5%

- **Case Studies:** Case studies are group assignments that will be conducted during 4 of the lectures. Students will work in groups to interpret data related to the current unit. By the end of the class, students must propose a hypothetical mechanism for how the underlying cellular process functions based on the data, and provide a rationale for that mechanism. The first case study will be to prepare students for what to expect, and the other 3 will be worth 5% each.

- **Participation:** Students who participate in 85% of all available activities will receive full participation marks. Students who participate in less than 85% will have their participation mark pro-rated accordingly.

- **Group Work:** Since many of the assignments in this course depend on a student's ability to work effectively as part of a group, it is vital that students treat group work as an important part of what they are trying to learn in this course. Students will be evaluated both of the work that is produced by the group and for their contribution to the group work as a whole. Students are expected to work together, share the load, and contribute. Failure to do so can result in loss of marks on group work, and a zero is possible on group work in extreme cases.

Schedule of Topics:

An approximate schedule is as follows:

Week	Unit	Topic
1		Course Introduction
2	Investigative Techniques	Research Methods for Cellular Physiology
	Cellular Dynamics: Creating Cytoskeletal Arrays	Creating Cytoskeletal Arrays
3		Nucleation
		Accessory Proteins 1
4		Accessory Proteins 2
		Case Study: MAPs and Human Disease
5		*Flex Day*
	Cellular Dynamics: Intracellular targeting and membrane flow	The Endomembrane System
6		Vesicular Traffic
		Case Study: Vesicle Traffic in Plants

7		**In-Class Review**
		In-Class Midterm
8	Cells in Context: Outside the cell membrane	Cell-Cell Adhesion – Intro
		Extracellular Matrix of Animals & Plants
9		**Case Study: Cell-cell Adhesion in Animals**
	Cells in Context: Cell-Cell Communication	**Term Project Outline Review Activity**
10		General Principals in Signaling
		G-Protein-Coupled Receptors
11		Enzyme-Coupled & other types of receptors
		Plant Signaling & Siganling Bingo!
12		**Case Study: Cell Signaling in Plants**
	Cells and Cancer	Introduction to Cancer Biology
13		*Flex Day*
	Poster Session	**Poster Session**

Exam Policies:

- Students who anticipate missing the midterm for legitimate reasons must contact the instructor as soon as possible. Any illnesses must be properly documented, and the instructor must be notified of the absence within 24 hours of the midterm. Any student that has not contacted by that time will receive a 0 for the midterm.
- For the midterm and final exams, one hand written information sheet of 8.5 x 11" paper, double-sided, will be allowed. Memorizing facts is not the goal of this course; students must be able to use information to solve problems and defend their point of view using appropriate scientific evidence.
- If a student misses the final exam they must apply for a deferred exam through their faculty's Dean's Office.

University Policies:

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence.

UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom.

UBC provides appropriate accommodation for students with disabilities and for religious, spiritual and cultural observances.

UBC values academic honesty and students ae expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions.

Details of the policies and how to access support are available on the UBC Senate website.