

DEPARTMENT OF SCIENCE COURSE OUTLINE – WINTER 2023 BI2010 A3 – CELLULAR BIOLOGY (3-0-0) 45 HOURS FOR 15 WEEKS

Northwestern Polytechnic acknowledges that our campuses are located on Treaty 8 territory, the ancestral and present-day home to many diverse First Nations, Metis, and Inuit people. We are grateful to work, live and learn on the traditional territory of Duncan's First Nation, Horse Lake First Nation and Sturgeon Lake Cree Nation, who are the original caretakers of this land.

We acknowledge the history of this land and we are thankful for the opportunity to walk together in friendship, where we will encourage and promote positive change for present and future generations.

INSTRUCTOR:	Dr. Shauna Henley,	PHONE:	539-2439
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OFFICE			

HOURS: Monday, Tuesday, Thursday, Friday – 1:00 – 2:00.

CALENDAR DESCRIPTION: The structure and functional dissection of a eukaryotic cell with emphasis on the techniques of modern cell biology. Detection of specific molecules at the ultrastructural level; plasma membrane structure and function; cytoskeletal involvement in intracellular transport, mitosis and cytokinesis; the endomembrane system, protein targeting, exocytosis and endocytosis; nuclear structure and function; cell cycle control and cancer.

PREREQUISITE(S)/COREQUISITE: BI1070 and one 1000-level chemistry

REQUIRED TEXT/RESOURCE MATERIALS:

"The World of the Cell" by Becker et al. (8th edition, 2012 or 9th edition, 2015) Benjamin Cummings Publishing Company.

DELIVERY MODE: Lectures – Mondays 11:30 – 12:20 & Fridays 10:00 – 11:20 *****Note:** recording of lectures will <u>not</u> be permitted.

COURSE OBJECTIVES: Students will gain a deeper understanding of how eukaryotic cells work and an appreciation for important experiments and techniques in cellular biology.

LEARNING OUTCOMES:

- 1. To demonstrate knowledge of the techniques used in cell biology.
- 2. To demonstrate understanding of the structure and function of eukaryotic organelles.
- 3. To foster critical thinking skills.

TRANSFERABILITY:

Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at the Alberta Transfer Guide main page <u>http://www.transferalberta.ca</u>.

** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability

EVALUATIONS:	Midterm I – 20%
	Midterm II – 20%
	Online quizzes – 10%
	Assignment – 10%
	Final Exam – 40%

Midterms I and II will be non-cumulative and held during class on Monday, January 30th and Monday, March 13th, respectively. There will be 4 online quizzes (worth 2.5% each), held during the weeks of January 23rd, February 13th, March 6th and March 27th. The assignment will be due on April 3rd. The final exam will be cumulative and will take place during the scheduled exam period.

GRADING CRITERIA: Please note that most universities will not accept your course for transfer credit **IF** your grade is **less than C-**.

Alpha Grade	4-point	Percentage	Alpha	4-point	Percentage
	Equivalent	Guidelines	Grade	Equivalent	Guidelines
A+	4.0	90-100	C+	2.3	67-69
А	4.0	85-89	С	2.0	63-66
A-	3.7	80-84	C-	1.7	60-62
B+	3.3	77-79	D+	1.3	55-59
В	3.0	73-76	D	1.0	50-54
B-	2.7	70-72	F	0.0	00-49

COURSE SCHEDULE: Taniaa

Topics		Required Text Readings			
-		8 th edition	9 th edition		
1.	Introduction to BI 2010				
2.	A preview of the cell	1-14, A1-A26	1-18, A19-A24		
3.	The macromolecules of the cell	41-71, 25-7,	42-71, 31-33,		
		32-36	36-39		
4.	Cells and Organelles	78-99	80-99		
5.	Membranes	156-89	152-81		
6.	Membrane transport	194-216	185-209		
7.	The nucleus	536-45	454-60		
8.	The cell cycle, DNA replication & mitosis	549-64, 571-89	465-81, 714-38		
9.	Transcription	645-75	499-531		
10.	Protein synthesis and sorting	679-705	535-66		
11.	Mitochondria & chloroplasts	254-8, 293-7	243-9, 283-7		
12.	Endomembrane system & peroxisomes	324-60	314-47		
13.	Cytoskeletal systems	422-44	351-75		
14.	Cellular movement	449-74	377-402		
15.	Beyond the cell	477, 481-97	405-28		
16.	Signal transduction	372-89, 392-400,	664-81, 684-94,		
		406-12, 591-4	698-704, 740-3		
17.	Cancer cells	758-91	778-810		

STUDENT RESPONSIBILITIES: Students are expected to attend <u>all</u> classes and complete all readings. Failure to write a quiz or exam will result in a grade of zero unless appropriate documentation is provided.

STATEMENT ON PLAGIARISM AND CHEATING:

Cheating and plagiarism will not be tolerated and there will be penalties. For a more precise definition of plagiarism and its consequences, refer to the Student Conduct section of the Northwestern Polytechnic Calendar

at <u>https://www.nwpolytech.ca/programs/calendar/</u> or the Student Rights and Responsibilities policy which can be found at <u>https://www.nwpolytech.ca/about/administration/policies/index.html</u>.

**Note: all Academic and Administrative policies are available on the same page.