NORTHWESTERN POLYTECHNIC

DEPARTMENT OF SCIENCE

COURSE OUTLINE – WINTER 2026

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, PhD	**PHONE:**	780-539-2439
OFFICE:	J215	**E-MAIL:**	SHenley@nwpolytech.ca

OFFICE HOURS: As posted on office door.

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

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REQUIRED TEXT/RESOURCE MATERIALS:
"The World of the Cell" by Becker *et al.* (9th edition, 2015 or 10th edition, 2022) Benjamin Cummings Publishing Company.

DELIVERY MODE: Lectures – Wednesday & Friday, 1:00 – 2:20

*****Note: recording of lectures will not be permitted.**

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 http://www.transferalberta.alberta.ca.

** 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 **Friday, January 30th** and **Friday, March 13th**, respectively. There will be 4 online quizzes (worth 2.5% each), held during the weeks of **January 21-27**, **February 11-17**, **March 4-10** and **April 1-7**. The assignment will be due on **April 3rd**. The final exam will be cumulative and will take place during the scheduled exam period.

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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 Equivalent	Percentage Guidelines	Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	95-100	C+	2.3	67-69
A	4.0	85-94	C	2.0	63-66
A-	3.7	80-84	C-	1.7	60-62
B+	3.3	77-79	D+	1.3	55-59
B	3.0	73-76	D	1.0	50-54
B-	2.7	70-72	F	0.0	00-49

COURSE SCHEDULE:

	Topics	**Required Text Readings** 10th edition	9th edition
1.	Introduction to BI 2010		
2.	A preview of the cell	1-18, A19-A24	1-18, A19-A24
3.	The macromolecules of the cell	43-73, 31-33, 34-40	42-71, 31-33, 36-39
4.	Cells and Organelles	79-101	80-99
5.	Membranes	154-81	152-81
6.	Membrane transport	186-209	185-209
7.	The nucleus	462-9	454-60
8.	The cell cycle, DNA replication & mitosis	473-90, 719-42	465-82, 714-38
9.	Transcription	510-36	499-531
10.	Protein synthesis and sorting	539-68	535-66
11.	Mitochondria, chloroplasts & peroxisomes	243-50, 284-7, 349-4	243-50, 283-7, 344-7
12.	Endomembrane system	314-49	314-43
13.	Cytoskeletal systems	358-82	351-75
14.	Cellular movement	384-403, 406-9	377-96, 399-402
15.	Beyond the cell	412-35	405-28
16.	Signal transduction	663-86, 689-700, 703-12, 745-8	658-81, 684-94, 698-704, 740-3
17.	Cancer cells	783-811	778-810

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

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STATEMENT ON ACADEMIC MISCONDUCT:

Academic Misconduct will not be tolerated. For a more precise definition of academic misconduct and its consequences, refer to the Student Rights and Responsibilities policy available at https://www.nwpolytech.ca/about/polytechnic-leadership/policies-directory.

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

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