



DEPARTMENT OF SCIENCE

COURSE OUTLINE – WINTER 2020

BI2010 (A3) – CELLULAR BIOLOGY – 3 (3-0-0), 45 HOURS FOR 15 WEEKS

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

PhD

OFFICE: J215

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Monday 12:20 – 1:00; Tuesday 10:00 – 11:30; Thursday 10:00 –

OFFICE HOURS: 11:30; Friday 11:00 – 12:30

CALENDAR DESCRIPTION: A structural 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

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 – Tues and Thurs, 1:00 – 2:20

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: University of Alberta

University of Calgary

University of Lethbridge

Athabasca University

Augustana Faculty, University of Alberta

Concordia University College

Canadian University College

Grant MacEwan University

King's University College*

MRU

***Warning:** Although we strive to make the transferability information in this document up-to-date and accurate, **the student has the final responsibility for ensuring the transferability of this course to Alberta Colleges and Universities.**

Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at Alberta Transfer Guide main page

<http://www.transferalberta.ca> or, if you do not want to navigate through few links, at <http://alis.alberta.ca/ps/tsp/ta/tbi/onlineSearch.html?SearchMode=S&step=2>

** 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 **Thursday, January 30** and **Thursday, March 12**, respectively. There will be 4 online quizzes (worth 2.5% each), held during the weeks of **January 20, February 10, March 2** and **March 30**. The assignment will be due in class on **April 2**. 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 Equivalent	Percentage Guidelines		Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	90-100		C+	2.3	67-69
A	4.0	85-89		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

8th edition

9th 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, 32-36	42-71, 31-33, 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, 406-12, 591-4	664-81, 684-94, 698-704, 740-3
17.	Cancer cells	758-91	778-810

STUDENT RESPONSIBILITIES: Students are expected to attend all classes and complete all assigned readings. Failure to write a quiz or exam will result in a grade of zero unless appropriate documentation is provided. Refer to the College Policy on Student Rights and Responsibilities at

https://www.gprc.ab.ca/about/administration/policies/#academic_policies

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 College Admission Guide at <http://www.gprc.ab.ca/programs/calendar/> or the College Policy on Student Misconduct: Plagiarism and Cheating at

<http://www.gprc.ab.ca/about/administration/policies/>

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