DEPARTMENT OF SCIENCE

COURSE OUTLINE – WINTER 2016

BI 2010 – CELLULAR BIOLOGY
3 Credits (3-0-0)

INSTRUCTOR: Philip Johnson **PHONE:** 539-2863

OFFICE: J224 **E-MAIL:** PJohnson@gprc.ab.ca

OFFICE HOURS: Tuesdays & Thursdays 1130-1250; Fridays 1000-1120

PREREQUISITE(S)/COREQUISITE: BI 1070

REQUIRED TEXT/RESOURCE MATERIALS:
"The World of the Cell" by Becker *et al.* (7th edition, 2009 or 8th edition, 2012) Benjamin Cummings Publishing Company.

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.

CREDIT/CONTACT HOURS: 3 Credits (3-0-0) UT, 45 hours

DELIVERY MODE: Lectures – Tues and Thurs, 1:00 – 2:20, Rm J204

TRANSFERABILITY: University of Alberta;
University of Calgary
University of Lethbridge
Athabasca University
Augustana Faculty
Concordia University CollegeKing's University College

COURSE OUTCOMES:

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. Demonstrate knowledge of the techniques utilized in cell biology
2. Demonstrate understanding of the structure and function of eukaryotic organelles

GRADING CRITERIA:

GRANDE PRAIRIE REGIONAL COLLEGE GRADING CONVERSION CHART			
Alpha Grade	**4-point Equivalent**	**Percentage Guidelines**	**Designation**
A^+	**4.0**	**90 – 100**	**EXCELLENT**
A	**4.0**	**85 – 89**	
A^-	**3.7**	**80 – 84**	**FIRST CLASS STANDING**
B^+	**3.3**	**77 – 79**	
B	**3.0**	**73 – 76**	**GOOD**
B^-	**2.7**	**70 – 72**	
C^+	**2.3**	**67 – 69**	**SATISFACTORY**
C	**2.0**	**63 – 66**	
C^-	**1.7**	**60 – 62**	
D^+	**1.3**	**55 – 59**	**MINIMAL PASS**
D	**1.0**	**50 – 54**	
F	**0.0**	**0 – 49**	**FAIL**
WF	**0.0**	**0**	**FAIL, withdrawal after the deadline**

****** 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: Exam I – 25%
Exam II – 25%
Online quizzes – 10%
Final Exam – 40%

Exams I and II will be non-cumulative and held during class on **Tuesday February 3** and **Tuesday March 17**, respectively. There will be 4 online quizzes (worth 5% each), held during the weeks of **January 19**, **February 16**, **March 9** and **March 30**. The final exam will be cumulative and will take place during the scheduled exam period.

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.

STATEMENT ON PLAGIARISM AND CHEATING:
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 www.gprc.ab.ca/about/administration/policies/

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

COURSE SCHEDULE:

Topics		**Required Text Readings**	
		8th edition	**7th edition**
1.	Introduction to BI 2010		
2.	A preview of the cell	1-14, A1-A26	1-14, A1-26
3.	The macromolecules of the cell	41-71, 25-7, 32-6	41-71, 25-7, 32-6
4.	Cells and Organelles	78-99	78-99
5.	Membranes	156-89	156-89
6.	Membrane transport	194-216	194-216
8.	The nucleus	536-45	538-46
9.	The cell cycle, DNA replication & mitosis	549-64, 571-89	551-66, 572-91
10.	Transcription	645-75	645-75
11.	Protein synthesis and sorting	679-705	679-705
12.	Mitochondria & chloroplasts	254-8, 293-7	254-8, 293-7
13.	Endomembrane system & peroxisomes	324-60	324-60
14.	Cytoskeletal systems	422-44	425-48
15.	Cellular Movement	449-74	452-76
16.	Beyond the cell	477, 481-97	480, 484-500
17.	Signal transduction	372-89, 392-418	371-88, 392-419
18.	Cancer cells	788-91	757-89