DEPARTMENT OF SCIENCE

COURSE OUTLINE – FALL 2013

BI1070 A2 – INTRODUCTION TO CELL BIOLOGY

INSTRUCTOR:	Dr. Shauna Henley, PhD	**PHONE:**	539-2439
OFFICE:	J215	**E-MAIL:**	SHenley@gprc.ab.ca

OFFICE HOURS: Wednesday & Friday 9:30 – 11:00

PREREQUISITE(S)/COREQUISITE: Biology 30 and Chemistry 30

REQUIRED TEXT/RESOURCE MATERIALS:
"Biology" by Campbell *et al.* (9th edition, 2011 or 8th edition, 2008), Benjamin Cummings Publishing Company.

"Biology on the cutting edge" edited by Gillies & Hewitt (2011), Pearson Canada Publishing Company.

University of Alberta, Biology 1070 Laboratory Manual 2013/14.

CALENDAR DESCRIPTION: All life functions are based on cells, and this course will provide an introduction to cell structure and function. Major topics will include the origin of life, the development of prokaryotic and eukaryotic cell lineage, energy conversions, the compartmentalization of biochemical functions within a cell and communication from cell to cell. The genetic control of cell activities is examined through methods of molecular genetic analysis and their application in genetic engineering and biotechnology.

CREDIT/CONTACT HOURS: 3 Credits (3-1-3) UT, 105 hours

DELIVERY MODE(S):
Lectures – Tues and Thurs, 8:30 – 9:50, Rm J201

Labs – L1 Tues, 2:30 – 5:20, Rm J126
L2 Wed, 2:30 – 5:20, Rm J126
L3 Thurs, 2:30 – 5:20, Rm J126

Seminars – S2 Mon, 11:30 – 12:20, Rm J202
S1 Fri, 8:30 – 9:20, Rm J227
S3 Fri, 11:30 – 12:20, Rm J227

COURSE OUTCOME:
Upon completion of the course, students should be able to:

1. Apply knowledge of the structure of molecules and cells to explain how energy, matter, and information moves within and between cells of eukaryotes and prokaryotes.
2. Apply knowledge of laboratory skills and techniques to generate data and conduct analyses of that data.
3. Demonstrate written communication skills in laboratory reports and seminars.

TRANSFERABILITY: UA, UC, UL, AU, AF, CU, KUC
****** 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.

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**

EVALUATIONS: Midterm Exam – 20%
Final exam – 35%
Laboratory – 35%
Seminar – 10%

The midterm exam will be held in class on **Thursday October 17**. The final exam will be cumulative and will take place during the exam period. Failure to write the midterm or exam will result in a grade of zero unless appropriate documentation is provided.

STUDENT RESPONSIBILITIES: Students are expected to attend **all** classes, seminars and laboratory sessions. All assignments must be completed in full and handed in by the date specified.

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 (pages)	
		9th edition	8th edition
1.	Introduction to BI 1070		
2.	Chemistry Review	32-42, 58-89	32-42, 58-89
3.	Classification of Organisms	12-14, 551-553, 566-573	12-14, 551-553, 566-573
4.	Cell Membranes	125-139	125-139
5.	Prokaryotic Cell Structure	556-559	556-559
6.	Cell structure – Organelles	98-111	98-111
7.	Cytoskeleton and Molecular Motors	112-118	112-118
8.	Cell walls and Extracellular Matrix	118-121	118-121
9.	Biological Order and Energy	142-160	142-159
10.	Glycolysis & Anaerobic Metabolism	163-169, 177-180	162-169, 177-180
11.	Citric Acid Cycle (Kreb's Cycle)	170-172	170-172
12.	Electron Transport Systems	172-177	172-177
13.	Chloroplasts and Photosynthesis	184-193	185-194
14.	Photosynthesis - Light Reactions	193-197	194-198
15.	Calvin Cycle and Photorespiration	197-203	198-203
16.	Bacterial Cell Growth	236-237, 559-564	236-237, 559-564
17.	Cell Division, Mitosis, Meiosis	228-236, 238-243, 250-257	228-236, 238-243 250-258
18.	DNA Chemistry	305-310	305-310
19.	The Eukaryotic Nucleus	320-322	320-323
20.	DNA Replication	311-319	311-319
21.	Genes, mRNA and Proteins	325-331	325-331
22.	Transcription and RNA Processing	331-335	331-335
23.	Regulation of Transcription	351-356	351-356
24.	Translation	337-344	337-344
25.	Viruses, Phages, Viroids, and Prions	381-394	381-394