



DEPARTMENT OF SCIENCE

COURSE OUTLINE - Winter 2014

BI 1070 A3 - INTRODUCTION TO CELL BIOLOGY

INSTRUCTOR: Dr. Sean Irwin, Ph.D. **PHONE:** 539-2860 (W); 567-2226 (H)
OFFICE: J221 **E-MAIL:** sirwin@gprc.ab.ca

OFFICE HOURS: Tues. and Thurs. 10 - 11:20; Wed. 1 - 2:20 pm

PREREQUISITES: Biology 30 and Chemistry 30

REQUIRED TEXT/RESOURCE MATERIALS:

“Biology” by Campbell *et al.* (9th ed., 2011 or 8th ed., 2008) Benjamin Cummings Publishing Company.

“Biology on the Cutting Edge” Edited by Gillies and Hewitt (2011), Pearson Canada Publishing Company.

Biology 1070 Laboratory Manual, University of Alberta 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

DELIVERY MODE(S): Lectures – Mon. and Wed. 10 – 11:20, Rm. J201
Labs - L1 Thurs. 2:30 – 5:20, Rm. J126
L3 Wed. 2:30 – 5:20, Rm. J126
Seminars - S1 Fri. 10:00 – 10:50, Rm. J227
S2 Thurs. 11:30 – 12:20, Rm. J201

OBJECTIVES: 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.

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

EVALUATIONS:

Midterm Exam	- 20%
Final Exam	- 35%
Laboratory	- 35%
Seminars	- 10%

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/**

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

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

COURSE SCHEDULE/TENTATIVE TIMELINE: Winter 2014

Topics	Required Text Readings (pages)	
	9th edition	8th edition
1. Introduction to BI 1070		
2. Chemistry Review	32-42, 58-89	34-43, 60-89
3. Classification of Organisms	12-14, 551-3, 566-73	12-14, 551-3, 566-73
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	142-60	141-59
10. Glycolysis & Anaerobic Metabolism	163-9, 177-80	163-9, 177-80
11. Citric Acid Cycle (Kreb’s Cycle)	170-2	170-2
12. Electron Transport Systems	172-77	172-77
Midterm	Wednesday, February 26 th	
13. Chloroplasts and Photosynthesis	184-193	185-194
14. Photosynthesis - Light Reactions	193-97	194-98
15. Calvin Cycle and Photorespiration	197-203	198-203
16. Bacterial Cell Growth	236-37, 559-64	236-37, 559-64
17. Eucaryotic Cell Division and Mitosis	228-36, 238-43	228-36, 238-43
18. DNA Chemistry	305-10	305-10
19. The Eukaryotic Nucleus	320-22	320-23
20. DNA Replication	311-19	311-19
21. Genes, mRNA and Proteins	325-331	325-331
22. Transcription and RNA Processing	331-335	331-335
23. Regulation of Transcription	351-56	351-56
24. Translation	337-44	337-44
25. Viruses, Phages, Viroids, and Prions	381-94	381-94