DEPARTMENT OF SCIENCE

COURSE OUTLINE – Winter 2010

BI 1070

Introduction to Cell Biology

INSTRUCTOR: Dr. Sean Irwin, Ph.D. **PHONE:** 539-2860 (W); 567-2226 (H)

OFFICE: J 221 **E-MAIL:** sirwin@gprc.ab.ca

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

PREREQUISITES: Biology 30 and Chemistry 30

REQUIRED TEXT/RESOURCE MATERIALS:

"Biology" by Campbell and Reece (8th edition, 2008)
Benjamin Cummings Publishing Company
The 7th Edition (2005) of this text is also acceptable

University of Alberta, Biology 1070 Laboratory Manual 2009/10

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 (3-0-3) UT

DELIVERY MODE(S): Lectures – Mon. and Wed. 10 – 11:20, Rm. D308
Labs - Tues. and Wed. 2:30 – 5:20, Rm. J126

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

EVALUATION:

Midterm Exam	- 25%
Final Exam	- 35%
Laboratory	- 40%

STATEMENT ON PLAGIARISM AND CHEATING:

Please refer to pages 49-50 of the College calendar regarding plagiarism, cheating and the res

2008-2009 Course Outline

	Topics	Required Text Readings (pages) 8th edition	7th 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, 566-70	12-14, 529-31, 541-44
4.	Cell Membranes	125-139	124-138
5.	Prokaryotic Cell Structure	556-559	535-537
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	142-59	141-57
10.	Glycolysis & Anaerobic Metabolism	162-9, 177-9	160-7, 174-6
11.	Citric Acid Cycle (Kreb's Cycle)	170-2	168-70
12.	Electron Transport Systems	172-77	170-74
13.	Chloroplasts and Photosynthesis	185-194	181-190
14.	Photosynthesis - Light Reactions	194-8	190-93
15.	Calvin Cycle and Photorespiration	198-203	193-97
16.	Bacterial Cell Growth	236-37, 561-4	226-7, 348-51
17.	Eucaryotic Cell Division and Mitosis	228-36, 242-43	218-26, 232-33
18.	DNA Chemistry	305-10	293-8
19.	The Eukaryotic Nucleus	320-23	359-63
20.	DNA Replication	311-19	299-307
21.	Genes, mRNA and Proteins	325-331	309-14
22.	Transcription and RNA Processing	331-335	315-19
23.	Regulation of Transcription	351-56	352-56
24.	Translation	337-44	320-28
25.	Viruses, Phages, Viroids, and Prions	381-94	334-46

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**