



DEPARTMENT OF SCIENCE

COURSE OUTLINE – Fall 2012-13

BI 1070 – INTRODUCTION TO CELL BIOLOGY

INSTRUCTOR: Philip Johnson **PHONE:** 780-539-2863
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OFFICE HOURS: Mondays, Tuesdays & Thursdays 1000-1120 hours
Wednesdays 1300-1420 hours
Fridays 1130-1220 hours

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

REQUIRED TEXT/RESOURCE MATERIALS:

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

“Biology on the Cutting Edge” edited by Gillies & Hewitt (2011)
Pearson Publishing

Biology 1070 Laboratory Manual 2011/12, University of Alberta

CALENDAR DESCRIPTION: This course provides an introduction to cell structure and function. Major topics include the molecules and structures that comprise prokaryotic and eukaryotic cells, the mechanisms by which energy is harvested and used by cells, how cells reproduce, and how information is stored and used within a cell via the processes of DNA replication, transcription and translation.

CREDIT/CONTACT HOURS: 3 credits (3-1-3)

DELIVERY MODE(S):	Classes	Tuesdays & Thursdays	0830-0950 (J227)
	Labs:	L1 Tuesdays	1430-1720 (J126) or
		L2 Wednesdays	1430-1720 (J130) or
		L3 Thursdays	1430-1720 (J126)
	Seminars:	S1 Fridays	0830-0920 (J229) or
		S2 Mondays	1130-1220 (J229) or
		S3 Fridays	1130-1220 (J228)

OBJECTIVES:

Successful completion of this course will enable students 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.

SUPPLEMENTS: Copies of the Lecture Powerpoint presentations will be available as handouts. They can be downloaded from the BI 1070 Moodle page.

Mastering Biology Web site

Students can gain access to this resource using the Student Access Kit provided with the text book. The Study Area of this site provides many useful tools including animations, videos and practice quizzes.

TRANSFERABILITY:

BIOL 107 University of Alberta

EVALUATIONS:	Lab. Quizzes	7.5%
	Lab. Reports	7.5%
	Lab. Exam	20%
	Seminar	10%
	Mid-term Exam	20%
	Final Exam	35%

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**

STUDENT RESPONSIBILITIES: All cell phones should be switched off while students are in class. Should a cell phone ring during class, the first instance will result in a warning to all students; further instances will result in the owner of the cell phone being asked to leave that day's class.

Students will be allowed to use standard non-programmable calculators in exams. **All other electronic devices are prohibited** and should not be brought into exams. Students found to be using a prohibited electronic device during an exam will be required to leave immediately and will receive a mark of zero for that exam.

Students should read pages 47-50 of the 2012-2013 G.P.R.C. Calendar, especially in regards to policies on plagiarism, cheating and the resulting penalties. These are serious issues and will be dealt with severely.

In order to succeed in Biology 1070:

- it is advisable to attend all classes and laboratory sessions, and complete all assignments in full and on time.
- students should be active participants in class discussions
- students should ask any questions that will clarify the material being presented.

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

BI 1070
TOPIC OUTLINE & TEXT READINGS
WINTER 2011-2012

<u>TOPICS</u>	<u>8th edition</u>	<u>9th edition</u>
Introduction to BI 1070		
Chemistry review	32-42, 58-89	30-42, 58-88
Classification of living organisms	89, 98-9, 463-5, 516-7, 551-3, 556-9, 565-570	89, 98-99, 462-4,, 516-7, 551-3, 556-9, 565-9
Overview of cell structure and membranes	95-97, 125-139	94-7, 125-39
Cell walls and extracellular matrix	118-121, 556-9	118-22, 556-9
Cellular compartments	98-111, 558	98-111, 558
Cytoskeleton and molecular motors	112-118, 558-9	112-8, 558-9
Cell Communication & Signaling	206-222	206-223
Biological Order and Energy	142-159, 163-4	142-160, 163-4
Glycolysis & anaerobic metabolism	162-9, 177-9	163-9, 177-9
Kreb's Cycle & Electron transport	170-7	170-7
Catabolism & Anabolism	180-182	179-181
Chloroplasts and Photosynthesis	185-194	184-193
Photosynthesis - Light Reactions	194-8,	193-197
Photosynthesis – Calvin Cycle, photorespiration	198-203	198-203
Other energy sources and bioremediation	572-3, 1260-1	572-3, 1232-3
Bacterial cell growth	236-7, 559-64	236-7, 559-564
Eucaryotic cell division and the cell cycle	228-243	228-243
DNA chemistry and transfer in prokaryotes	305-310	305-310
DNA packaging in eukaryotes	320-322	320-322
DNA replication	311-19	311-318

Genes, mRNA and proteins	325-331	325-331
Transcription and RNA processing	331-335	331-335
Procaryotic regulation of transcription	351-6	351-355
Translation	337-346	337-346
Viruses, phages, viroids, prions	381-94	381-394