

	<p>School of Arts & Science BIOLOGY DEPARTMENT</p> <p>BIOL 230-A Cell Biology 2008W</p>
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COURSE OUTLINE

The Approved Course Description is available on the web @ [TBA](#)

Ω Please note: this outline will be electronically stored for five (5) years only.
It is strongly recommended students keep this outline for your records.

1. Instructor Information

(a)	Instructor:	William C. Hulbert, Ph.D.	
(b)	Office Hours:	Mon 1:30 PM – 2:20 PM Tue 3:30 PM – 4:20 PM Wed 3:30 PM – 4:20 PM Thu 1:30 PM – 2:20 PM, 3:30 PM – 4:20 PM I will also be available at other times if necessary.	
(c)	Location:	F340D	
(d)	Phone:	370 3201	Alternative Phone:
(e)	Email:	hulbertw@camosun.bc.ca	
(f)	Website:	TBA	

2. Intended Learning Outcomes

(No changes are to be made to this section, unless the Approved Course Description has been forwarded through EDCO for approval.)

Upon completion of this course the student will be able to:

1. Describe the monomeric components, synthesis and properties of the polymer for each of the four groups of macromolecule.
2. Examine the molecular structure of cellular membranes. Discuss the roles of active and passive transport mechanisms in the movement of molecules across cellular membranes.
3. Classify and describe the structural and adhesive proteins of the extracellular matrix. Describe the structure and function of the major types of cell junction. Discuss the roles of the extracellular matrix and cell junctions in cell-cell recognition, communication and adhesion.
4. Explain the structural organization of DNA and chromosomes in the nucleus. Describe the structure and function of the nuclear matrix and lamina. Discuss passive and active transport of molecules through nuclear pores.
5. Demonstrate knowledge of the molecular mechanism of eukaryotic DNA replication. Understand the events associated with, and the molecular basis of, regulation of the cell cycle. Discuss how abnormalities in cell cycle regulation contribute to the development of cancer.
6. Discuss the principles of eukaryotic transcription, RNA processing and RNA surveillance. Explain the events associated with translation, polypeptide folding, post-translational processing and protein targeting and sorting.

7. Discuss the role of the smooth endoplasmic reticulum in drug detoxification, carbohydrate metabolism, and calcium storage. Describe the flow of molecules through the endomembrane system. Explain the roles of the rough endoplasmic reticulum and the Golgi complex in glycosylation and protein sorting.
8. Describe, at the molecular level, the means by which G protein-linked and protein-kinase associated receptors activate signal transduction pathways within the cell. Discuss the molecular mechanisms of induction and regulation of apoptosis.
9. Describe and differentiate among the major structural elements of the cytoskeleton. Discuss the role of the cytoskeleton in cell movement, division and positioning and movement of organelles.
10. Conduct complex experiments and use a variety of current molecular and analytical techniques to assess various aspects of cellular biology. Critically evaluate data and present written laboratory reports.

3. Required Materials

(a) Texts

Becker, Reece and Poonie (2006) *The World of the Cell*, 6th Edition (Benjamin)Cummings

Lab Manual

Biology 230 Laboratory Manual, Camosun College Biology Department 2007-2008

4. Course Content and Schedule

Biology 230 – Cell Biology – Winter 2008

Schedule of Anticipated Lecture and Laboratory Topics (subject to change)

Week	Day	Date	Lecture Topic (Text Chapter)	Laboratory Exercise
1 (Jan 7-11)	Mon	7- Jan		No Lab
	Wed	8- Jan	Cell Chemistry & Macromolecules (2,3)	
	Thur	9- Jan	Cell Chemistry & Macromolecules (2,3)	
	Fri	10- Jan	Cell Chemistry & Macromolecules (2,3)	
2 (Jan 14-18)	Mon	14- Jan		Introduction and Use of Lab Equipment
	Wed	16- Jan	Cell Chemistry & Macromolecules (2,3)	Lab 1 Microscopy and Histology
	Thur	17- Jan	Cell Chemistry & Macromolecules (2,3)	
	Fri	18- Jan	Cell Chemistry & Macromolecules (2,3)	
3 (Jan 21-25)	Mon	21- Jan		Lab 6 CSI (Pt 1)
	Wed	24- Jan	Membrane Structure & Function (7)	
	Thur	25- Jan	Membrane Structure & Function (7)	
	Fri	26- Jan	Membrane Structure & Function (7)	
4 (Jan 28-Feb 1)	Mon	28- Jan		Lab 6 CSI (Pt 2)
	Wed	30- Jan	ECM; Cell Adhesion; Cell Junctions (17)	Lab 2 Animal Cell Culture (Pt 1)
	Thur	31- Jan	ECM; Cell Adhesion; Cell Junctions (17)	
	Fri	1- Feb	ECM; Cell Adhesion; Cell Junctions (17)	
5 (Feb 4-8)	Mon	4- Feb		Lab 2 Animal Cell Culture (Pt 2)
	Wed	6- Feb	Lecture Exam 1	Lab 3 Inject Cockroaches (Pt 1)
	Thur	7- Feb	ECM; Cell Adhesion; Cell Junctions (17)	
	Fri	8- Feb	ECM; Cell Adhesion; Cell Junctions (17)	
6 (Feb 11-15)	Mon	11- Feb		No Lab
	Wed	13- Feb	DNA and the Nucleus (18)	
	Thur	14- Feb	DNA and the Nucleus (18)	
	Fri	15- Feb	HOLIDAY- College Connections Day	
7 (Feb 18-22)	Mon	18- Feb		Lab Exam 1
	Wed	20- Feb	DNA Replication (19)	Lab 3 Cockroach Immune System (Pt 2)
	Thur	21- Feb	DNA Replication (19)	
	Fri	22- Feb	DNA Replication (19)	
8 (Feb 25-29)	Mon	25- Feb		Lab 4 Cockroach Protein Analysis (Pt 1)
	Wed	27- Feb	Transcription & RNA Processing (21)	

	Thur	28- Feb	Transcription & RNA Processing (21)	
	Fri	29- Feb	Transcription & RNA Processing (21)	
9 (Mar 3-7)	Mon	3 -Mar		Lab 4 Cockroach Protein Analysis (Pt 2)
	Wed	5- Mar	Translation & Protein Sorting (22)	
	Thur	6- Mar	Translation & Protein Sorting (22)	
	Fri	7- Mar	Translation & Protein Sorting (22)	
10 (Mar 10-14)	Mon	10- Mar		Lab 4 Cockroach Protein Analysis (Pt 3)
	Wed	12- Mar	Translation & Protein Sorting (22)	Last Day to Withdraw Without Penalty
	Thur	13- Mar	Signal Transduction (14)	
	Fri	14- Mar	Signal Transduction (14)	
11 (Mar 17-21)	Mon	17- Mar		Lab 5 Signal Transduction (Pt 1)
	Wed	19- Mar	Signal Transduction (14)	
	Thur	20- Mar	Lecture Exam 2	
	Fri	21- Mar	HOLIDAY (Good Friday)	
12 (Mar 24-28)	Mon	24- Mar	HOLIDAY (Easter)	No Lab
	Wed	26- Mar	Regulation of Gene Expression (23)	
	Thur	27- Mar	Regulation of Gene Expression (23)	
	Fri	28- Mar	Regulation of Gene Expression (23)	
13 (Mar 31-Apr 4)	Mon	31- Mar		Lab 5 Signal Transduction (Pt 2)
	Wed	2- Apr	Cell Cycle Regulation (19)	
	Thur	3- Apr	Cell Cycle Reg (19) Apoptosis (14)	
	Fri	4- Apr	Apoptosis (14); Cancer (24)	
14 (Apr 7-11)	Mon	7- Apr		Lab Exam 2
	Wed	9- Apr	Intracellular Compartments (12)	
	Thur	10- Apr	Intracellular Compartments (12)	
	Fri	11- Apr	Intracellular Compartments (12)	

5. Basis of Student Assessment (Weighting)

Quizzes/Cell diagrams with vocabulary/Lecture Assignments/Lab Reports	15%
Midterm Lecture Exam 1	15%
Midterm Lecture Exam 2	15%
Final Lecture Exam	25%
Midterm Lab Exam 1	15%
Final Lab Exam 2	15%

There are weekly multiple choice/fill-in/short answer quizzes, cell diagrams with vocabulary and written assignments from the text book **except on weeks that we have exams**. The lecture exams and the lab exams are **written** exams. The 90% challenge process is in effect for this course. The Professor will explain the details of this challenge the first day of class; for those whose goal it is to learn as much as possible about Cell Biology in this course, and are willing to 'go the distance' your efforts will be rewarded.

6. Grading System

(No changes are to be made to this section, unless the Approved Course Description has been forwarded through EDCO for approval.)

Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4

65-69	C+		3
60-64	C		2
50-59	D	Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite.	1
0-49	F	Minimum level has not been achieved.	0

Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy E-1.5 at camosun.ca for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress:</i> A temporary grade assigned for courses that, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. (For these courses a final grade will be assigned to either the 3 ^d course attempt or at the point of course completion.)
CW	<i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.

7. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College calendar, at Student Services or the College web site at camosun.ca.

STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes issues like plagiarism and disrupting class by talking while lectures are in progress.** It is the student's responsibility to become familiar with the content of this policy available in each School Administration Office, at Student Services and on the College web site in the Policy Section.

ADDITIONAL COMMENTS AS APPROPRIATE OR AS REQUIRED

