



**School of Arts & Science
BIOLOGY DEPARTMENT
BIOL 126-001
Physiological Basis of Life
2007F**

COURSE OUTLINE

The Approved Course Description is available on the web @ <http://online.camosun.ca/>

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:	Rosemary Mason		
(b)	Office Hours:	Tues, Thurs, Fri 9:30 – 10:20; Tues, Wed. 2:30 – 3:20		
(c)	Location:	Ewing 236		
(d)	Phone:	3301	Alternative Phone:	
(e)	Email:	masonr@camosun.bc.ca		
(f)	Website:	http://online.camosun.ca/		

Prerequisites: English 12 **or** assessment, **and** “C+” in Biology 12

2. Intended Learning Outcomes

Classify and describe the unique structure and function of the four groups of macromolecules and discuss how these relate to their properties within living cells.

Differentiate among the various transport mechanisms available to mobilize molecules across cell membranes.

Name and outline the pathways utilized by cellular respiration and photosynthesis and explain the importance of these processes to living organisms.

Describe the basic steps of DNA replication and indicate its role in cell division and inheritance.

Demonstrate knowledge of the basic steps of protein synthesis, identifying the roles of DNA, mRNA, tRNA, amino acids and proteins in the processes of transcription and translation.

Identify and explain the principles and consequences of the cell cycle, including both mitosis and meiosis.

Examine the basic principles of Mendelian genetics and describe how these relate to other topics encompassed in this course.

Describe and explain the role of growth regulators in the control of plant growth, development and physiology.

Describe and explain the diversity of control mechanisms in animal systems, including the role of the endocrine and nervous systems.

Conduct experiment tests and use analytical techniques in the laboratory to demonstrate a few biological properties of macromolecules, cellular respiration, photosynthesis, DNA technology and plant and animal control systems.

3. Required Materials

1. Textbook: Campbell, N. A. & J. B. Reece. 2007. Biology, 8th ed., Pearson Education, Inc., San Francisco, CA.
2. Camosun College Biology Faculty. Fall 2008. Biology 126 Lab Manual, Camosun College, Victoria, B.C.

4. Course Content and Schedule

The schedule, which follows, is an attempt to outline the weekly activities of the class. It is subject to change or modification as the need arises.

Week	Dates	Lecture Topic	Chap.	Laboratory Exercise
1	Sept. 2 - 5	Characteristics of Life	8	No Lab
2	Sept. 8 -12	Metabolism– Introductory Stuff (pp.61 - 66, 69 – 86, 146 – 164)	4 8	Lab 1 - Tools for Scientific Discovery
3	Sept. 15 - 19	Glycolysis and Respiration (Chapt.9)	9	Lab 2 Enzyme Activity
4	Sept. 22 - 26	An End to Respiration	9	Lab 3 Respiration
5	Sept. 29 – Oct. 3	Photosynthesis (Chapt.10)	10	Lab 4 Photosynthesis
6	Oct. 6 - 10	Midterm Exam 1 The Cell Membrane	7	Lab 5 Movement of Molecules
October 13 – Thanksgiving - Classes cancelled				
7	Oct. 14 - 17	Intercellular Communication	11	No Lab
8	Oct. 20 - 21	Mitosis and the Cell Cycle	12	Midterm Lab Exam
9	Oct. 27 - 31	Sources of Variation	13	Lab 6 Mitosis & Meiosis
10	Nov. 3 – 7	Inheritance	14 15	Lab 7 Mapping DA using Restriction Enzymes & Electrophoresis
11	Nov. 10, Nov. 12 - 14	Midterm Exam 2 Inheritance	15	No Lab
Nov. 11 – Remembrance Day – College closed				
12	Nov. 17 - 21	DNA Replication	16	Lab 7 completion
13	Nov. 24 - 28	Protein Synthesis	17	Lab 8 Fruit Fly eye Pigments
14	Dec. 1 - 5	Regulation of Gene Expression	18	Final Lab Exam

Final lecture examination will be scheduled during formal exam period.

5. Basis of Student Assessment (Weighting)

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Lab Exam I	10%
Lab Exam II	15%
Midterm I	10%
Midterm II	15%
Final Lecture Exam	25%
Assignments/quizzes	20%

*** Lab exams will be unit exams. Lecture exams will be cumulative.

6. Grading System

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 rd 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 plagiarism**. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, at Student Services and on the College web site in the Policy Section.

*Active cell phones are a nuisance and distraction to all members of the class, including the Instructor. Biology 252 is a “**cell phone-free**” class. You are required to **TURN OFF** all cell phones before commencement of class. Failure to comply with this class rule would be considered a serious infringement and can lead to further action in terms of the College's Academic Conduct Policy.*

COURSE OUTLINE

The structure and functions of macromolecules, storage of information and replication of DNA as well as the role of DNA in protein synthesis and inheritance are described and related to the functions of whole organisms. Transport mechanisms, basic metabolism and hormonal and nervous regulation of function are explored with examples.

What this Course Promises You

What does it mean to be alive? How do single cells like bacteria or complex multicellular organisms like us cope with the constraints of life? In this course you will have the opportunity to explore these questions from a biological perspective. Even if you don't become a biologist you will gain a broadened understanding of questions that may affect your life like: What is cancer? Why is crucial that women have children younger in life and less so for men? How do asthma, sickle cell anemia, and smoking affect every cell in the body? What should you take for diarrhea – a sugary drink or plain water? What does cloning imply?

If you embrace and apply the ideas of this course you will understand how all living cells manage energy, interact and communicate with other cells, and then reproduce or die. Moreover you will understand what controls these processes and how their repetition determines the fate of each organism.

How You Will Fulfill These Promises

To realize these promises you must take responsibility for your own learning and participate as an active learner. Can you be committed to this class? You must make this choice. This is not the type of class you can drop into occasionally; you have to be really involved.

To take charge of your education, you must be willing to read and write. If you do not learn to communicate in words, you cannot formulate fully developed thoughts. To accomplish these goals, you will be given assignments that you will read, analyze, and think about between each class. You must also be willing to summarize and analyze data. To this end you will generate and analyze laboratory data and write lab reports. These assignments will help refine your thinking and understanding so that it becomes clearer, more precise, logical, and well-grounded in fact.

Ways to Understand the Nature and Progress of your Learning.

To evaluate your progress in reaching these goals (and to provide you with feedback on your learning) we will use at the following items:

Lecture and lab exams designed to assess your recall and understanding of the biological concepts relating to evolution and phylogeny. The lecture exams will be cumulative. The goal here is to encourage you to continue to learn and receive feedback on the critical concepts of the course.

Lab reports that will clarify the concepts of the lecture component of the course and enhance your numeracy and literacy.

Ongoing group quizzes and assignments designed to solidify and clarify concepts from the course. These will be group projects and will be jointly graded.

ADDITIONAL INFORMATION

- No programmable devices are allowed in exams.
- Assignments are due at the **beginning** of the class period on the due date. Assignments not handed in at the beginning of class will be considered late, for which there is a 15% penalty/day.
Note: There is the option of 1 free late assignment. There will be no penalty provided the assignment is received **prior** to it being marked and returned to the class. Any assignment received after its return to the rest of the class will be marked but will not receive credit.
- You should plan on a minimum of 6 hours outside of scheduled class time for the completion of assignments and for general studying.

ACADEMIC CONDUCT POLICY

There is an Academic Conduct Policy. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, Registration, and on the College web site in the Policy Section. <http://www.camosun.bc.ca/policies/Education-Academic/E-2-Student-Services-&-Support/E-2.5.pdf>