



**CAMOSUN COLLEGE**  
**School of Arts & Science**  
**Winter 09**  
**Biology 126 – Physiological Basis of Life**

**COURSE OUTLINE**

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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.

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Time and location:

Lectures:	M, W, T	1:30 - 2:20	F200	Bill Hulbert
Lab:	M (Sec. 01A)	2:30 - 5:20	F 224	Larry Anthony
	W (Sec. 01B)	8:30 - 11:20	F 224	Larry Anthony

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

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**Required Materials**

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

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**Office hours:** 9:00am to 10:30 Tu & Th  
**Campbell:** MBHULBERT33877  
**D2L:** Instructions to be provided

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**Basis of Student Assessment (Weighting)**

Lab Exam I + Lab Exam II + lab reports	40%
Lecture Midterm I	15%
Lecture Midterm II	15%
Final Lecture Exam	25%
Assignments, quizzes	5%

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

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### Intended Learning Outcomes

1. 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.
2. Differentiate among the various transport mechanisms available to mobilize molecules across cell membranes.
3. Name and outline the pathways utilized by cellular respiration and photosynthesis and explain the importance of these processes to living organisms.
4. Describe the basic steps of DNA replication and indicate its role in cell division and inheritance.
5. 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.
6. Identify and explain the principles and consequences of the cell cycle, including both mitosis and meiosis.
7. Examine the basic principles of Mendelian genetics and describe how these relate to other topics encompassed in this course.
8. Describe and explain the role of growth regulators in the control of plant growth, development and physiology.
9. Describe and explain the diversity of control mechanisms in animal systems, including the role of the endocrine and nervous systems.
10. 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.

### 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.

### 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, Registrar's Office or the College web site at <http://www.camosun.bc.ca/services/learning-skills/>

### 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>

## 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	Jan 5 - 9	Characteristics of Life	1,2,3	No Lab
2	Jan 12 - 16	Metabolism– Introductory Stuff	4,5	Lab 1 - Tools for Scientific Discovery
3	Jan 19 - 23	Glycolysis and Respiration	8, 9	Lab 2 Enzyme Activity
4	Jan 26 - 30	An End to Respiration Animal Nutrition	9,41	Lab 3 Respiration
5	Feb 2 - 6	Photosynthesis Plant Nutrition	10,47	Lab 4 Photosynthesis
6	Feb 9 - 13	<b>Lecture Midterm Exam 1 – day selected by class</b> The Cell Membrane	6,7	Lab 5 Movement of Molecules
7	Feb 16 - 18	Intercellular Communication	7,11	<b>Midterm Lab Exam</b>
		<b>COLLEGE CLOSED FEB 19 &amp; 20</b>		
8	Feb 23 - 27	Mitosis, and the Cell Cycle	12	Lab 6 Mitosis & Meiosis
9	Mar 2 - 5	Meiosis and Sources of Variation	13	Lab 7 Mapping DA using Restriction Enzymes & Electrophoresis
10	Mar 9 - 13	Inheritance	14,15	Lab 7 completion
11	Mar 16 - 20	<b>Midterm Exam 2 – day selected by class</b> Inheritance	15	<b>No Lab</b>
12	Mar 23 - 27	DNA Replication	16	Lab 8 Fruit Fly eye Pigments
13	Mar 30 – Apr 3	Protein Synthesis	17	Lab 8 Fruit Fly eye Pigments
14	Apr 5 - 9	Regulation of Gene Expression	18	<b>Final Lab Exam</b>
		<b>April 14-18 &amp; 20-22 Final Exams</b>		

**Final lecture examination will be scheduled during formal exam period.**

**All lecture exams are from the textbook. The exams will be in the format of written and multiple choice questions. Students are responsible for reading the Chapters indicated above as that is the material from which the assessment questions will be taken.**