

	School of Arts & Science BIOLOGY DEPARTMENT BIOL 103-004A/B Non-Majors General Biology Fall 2015
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COURSE OUTLINE

The College electronically stores this outline for five (5) years only. It is recommended you keep a copy of this outline with your academic records. You may need this outline for future application/s for transfer credit/s to other colleges/universities.

1. Instructor Information

Course Website:	http://online.camosun.ca/ (D2L)
Instructor:	(William) Don MacRae
Office Hours:	Tue (9:30-12:30), Wed & Fri (10:00-11:30)
Location:	F346A
Phone:	250-370-3437
Email:	dmacrae@camosun.bc.ca

2. Intended Learning Outcomes

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

1. Describe the concept of homeostasis.
2. Explain how basic physicochemical changes can impact cell function.
3. Work in a culture of scientific endeavor and use critical thinking skills.
4. Identify the critical roles played by water in the maintenance of life on earth.
5. Explain the structures and roles of biological macromolecules, particularly carbohydrates, proteins and lipids.
6. Describe the complexity and diversity of cellular ultrastructure and the functions of significant cellular organelles, in particular chloroplasts, mitochondria, ribosomes, Golgi apparatus, cilia and flagella.
7. Describe basic metabolism and energy producing pathways within the cell.
8. Explain the concept of the gene in the contexts of both Mendelian inheritance as well as the biochemical expression of genetic information.
9. Relate the structure of nucleic acids to the storage and replication of genetic information.
10. Explain the mechanisms used to regulate and translate genetic information into the assembly of functional proteins.
11. Describe the interactions between the environment and long-term changes in genetic information, particularly in consideration to neoplasia.
12. Describe the anatomy of the human digestive, cardiovascular and excretory systems and explain how the physiology of these organ systems is related to organization at the molecular and cellular level.
13. Describe the structure and explain the functions of the human immune system. Apply this knowledge to immune dysfunction, particularly allergies and AIDS.

3. Required Materials

Textbook: Openstax Concepts of Biology

- can be downloaded from: <https://openstaxcollege.org/textbooks/concepts-of-biology>

Lab manual: available on the D2L course site

- print the lab manual and bring to each lab period

Internet access is required to access the course D2L website for course management and to complete assignments

4. Course Content and Schedule

Lectures: Wednesday and Friday 11:30 AM– 12:50 PM, Young Room 310

Lab: Section A: Tuesday, 1:30 – 4:20 PM, Fisher Rm. 224

Section B: Thursday, 2:30 – 5:20 PM, Fisher Rm. 224

Biology 103 is a 1st year College non-majors course. It is assumed that you did not complete Biology 12 or that you want to upgrade your understanding of Biology to that level. If you plan to major in Biology, it will be necessary for you to complete two first year majors courses in Biology to proceed. In majors courses, a broad coverage of topics is required to form a good foundation for proceeding on to upper level courses in that subject area. Non-majors courses may approach topics in a way that is more broadly applicable to the life of the learner. There are countless ways to apply your understanding of biology. This semester, we will explore the topics listed in the “learning outcomes,” searching for ways to best apply them to our lives. People differ in their experiences and ideas and this approach to a subject works best if we can share these with each other. You will often be asked to work in groups to accomplish the learning tasks associated with this course.

5. Basis of Student Assessment (Weighting)

Assignments	25%
Exam 1	25%
Exam 2	25%
Final Exam	25%

If, because of illness or emergency, a student is unable to be present at a scheduled evaluation, the instructor should be informed as soon as possible and provided with explanatory details. In this situation, make-up tests will not normally be given; missing marks will be supplied by obtaining an average of other evaluations in the same category.

6. 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.

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 the College web site in the Policy Section.

Course Schedule

Wk	Date	Lecture Topics	Lab	Lab Topics
1	Sept 8-11	Cell Structure and Function (Ch 3)	-	Meet/Greet/Safety
2	Sept 14-18	Chemistry of Life (Ch 2)	1	Metric measurements
3	Sept 21-25	Chemistry of Life (Ch 2)	2	Microscopes & Cells
4	Sept 28-Oct 2	How Cells Obtain Energy (Ch 4)	3	Macromolecules
5	Oct 5-9	Reproduction at the Cellular Level (Ch 6)	4	Diffusion & Osmosis
6	Oct 12	<i>Thanksgiving – No classes</i>		
	Oct 13-16	The Cellular Basis of Inheritance (Ch 7)		
7	Oct 19-23	Patterns of Inheritance (Ch 8)	5	Enzyme Activity
8	Oct 26-30	Molecular Biology (Ch 9)	-	Exam 1
9	Nov 2-6	Ch 9	6	Cell Division
10	Nov 9-10	The Body`s Systems (Ch 16)		
	Nov 11	<i>Remembrance Day – No classes</i>		
	Nov 12-13	Ch 16		
	Nov 16-20	Ch 16	7/8	Inheritance of Human Traits
12	Nov 23-27	Ch 16	9	Human Nutrition
13	Nov 30-Dec 4	The Immune System and Disease (Ch 17)	10	Human Organ Systems
14	Dec 7-11	The Immune System and Disease (Ch 17)		Exam 2
	Dec 14-22	Final Exam (during Exam period)		

Openstax Concepts of Biology – Reading List

- 3.1 Cell Structure and Function (pp. 61-64)
- 3.2 Cell Structure and Function (pp. 65-66)
- 3.3 Cell Structure and Function (pp. 67-78)
- 3.4 The Cell Membrane (pp. 80-82)
- 3.5 Passive Transport (pp. 83-86)
- 3.6 Active Transport (pp. 87-90)
- 2.1 The Building Blocks of Molecules (pp. 32-39)
- 2.2 Water (pp. 39-43)
- 2.3 Biological Molecules (pp. 47-55)
- 4.1 Energy and Metabolism (pp.98-108)
- 4.2 Glycolysis (pp. 108-110)
- 4.3 Citric Acid Cycle and Oxidative Phosphorylation (pp. 110-113)
- 4.4 Fermentation (pp. 114-116)
- 4.5 Connections to other Metabolic Pathways (pp. 117-118)
- 6.1 The Genome (pp. 141-2)
- 6.2 The Cell Cycle (pp. 143-8)
- 6.3 Cancer and the Cell Cycle (pp. 149-50)
- 7.1 Sexual Reproduction (p. 161)
- 7.2 Meiosis (pp. 163-8)
- 8.1 Mendel's Experiments (pp. 180-3)
- 8.2 Laws of Inheritance (pp. 184-91)
- 9.1 The Structure of DNA (pp. 206-9)
- 9.2 DNA Replication (pp. 210-5)
- 9.3 Transcription (pp. 216-8)
- 9.4 Translation (pp. 219-21)
- 16.1 Homeostasis and Osmoregulation (pp. 412-415)
- 16.2 Digestive System (pp. 416-20)
- 16.2 Nutrition (pp. 420-22)
- 16.3 Respiratory system (pp. 423-4)
- 16.3 Circulatory System (pp.425-8)
- 17.2 Innate Immunity (pp. 469-72)
- 17.3 Adaptive immunity (pp. 472-81)
- 17.4 Disruptions in the immune system (pp. 481-4)