



**CAMOSUN COLLEGE**  
**School of Arts & Science**  
**Department of Biology**

**BIOL-126-D03A/B**  
**Physiological Basis of Life**  
**Winter 2021**

## COURSE OUTLINE

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The course description is online @ <http://camosun.ca/learn/calendar/current/web/biol.html>

\* Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.

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### 1. Instructor Information

|                  |   |
|------------------|---|
| (a) Instructor   | Sarah Cockburn  |
| (b) Office hours | Tue 12:30-2:20pm and by appointment Wed/Fri 10-11:00am, or by appointment                             |
| (c) Location     | Online on D2L (in Collaborate)  |
| (d) Phone        | n/a <b>Alternative:</b> n/a   |
| (e) E-mail       | Cockburns@camosun.bc.ca   |
| (f) Website      | <a href="http://online.camosun.ca">http://online.camosun.ca</a> (log in to D2L to access this course) |

### 2. Intended Learning Outcomes

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

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.

### 3. Required Materials

(a) **Recommended Textbook:**

Campbell Biology, Canadian Edition, 3<sup>rd</sup> Ed.\* (2020). Pearson Education, Inc., San Francisco, CA.

\*Note: Campbell Biology, Canadian Edition, 1<sup>st</sup> or 2<sup>nd</sup> Ed. or Campbell Biology, US Edition, 8<sup>th</sup>, 9<sup>th</sup>, or 10<sup>th</sup> Ed. are also suitable textbooks. Another textbook option, although not as comprehensive, is Concepts of Biology, Openstax by Rice University, available to download for free at [openstax.org/details/concepts-biology](https://openstax.org/details/concepts-biology).

(b) **Lab Manual:**

Lab instructions and related assignments will be posted on D2L prior to each scheduled lab.

(c) **Lecture Resources:**

Lectures are based on PowerPoint slides and will be delivered online. The slides will be posted on the course D2L website, along with additional resources for review and activities to complete. Slides may be downloaded or printed to help follow the lectures.

### 4. Course Content and Schedule\*

|                          |                      |                  |
|--------------------------|----------------------|------------------|
| <b>Lectures:</b>         | Monday and Wednesday | 2:30PM – 3:50PM  |
| <b>Lab Section D03A:</b> | Thursday             | 1:30AM – 4:20PM  |
| <b>Lab Section D03B:</b> | Tuesday              | 9:30AM – 12:20PM |

*\*Please see detailed weekly lecture/lab schedule on the last page of this outline.*

### 5. Basis of Student Assessment (Weighting)

(a) **Assignments & Participation:**

|                     |     |
|---------------------|-----|
| Lab Assignments     | 20% |
| Lecture Assignments | 14% |
| Participation       | 2%  |

(b) **Lecture Exams:**

|            |     |
|------------|-----|
| Midterm 1  | 12% |
| Midterm 2  | 12% |
| Final Exam | 20% |

(c) **Lab Exams:**

|            |     |
|------------|-----|
| Lab Exam 1 | 10% |
| Lab Exam 2 | 10% |

Note: Midterms and Lab Exams are NOT cumulative, but the Final Exam will be cumulative. Please have a calculator available for all exams.

## 6. Grading System

- Standard Grading System (GPA)
- Competency Based Grading System

## 7. Recommended Materials 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 website at [camosun.ca](http://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 the College web site in the Policy Section.

#### Plagiarism

Plagiarizing is appropriating the work or parts or passages of another's writing (including the ideas or language) and passing them off as the product of one's own mind or manual skill (see <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.1.pdf>).

**Plagiarism will not be tolerated.** Plagiarism, **including the copying of any part of assignments**, is a serious offence and is considered to be academic misconduct. All course work must be written the individual, and not copied from another student or from online sources. In some cases, the instructor may prefer an assignment to be written as a group. In such cases, handing in one assignment for the group will be acceptable. Otherwise, lecture and lab assignments handed in by individuals are expected to be individually prepared.

#### Cheating

A student caught cheating on an exam will at minimum forfeit all credit for that exam. Cheating is a serious offence and is considered to be academic misconduct. **Cheating includes, but is not limited to, using unauthorized materials in a quiz/exam and providing information to another person regarding exam content.**

The consequences for cheating and plagiarism are outlined by Camosun College policies (see <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf>) and penalties may be severe.

#### Attendance

Although this course is delivered in an online format, it is expected that you will "virtually" attend lectures and participate in all lectures and labs. If you have to miss a lecture or lab, it is your responsibility to find out what you missed and get caught up. For the most part, there will be a weekly lecture quiz and/or assignment to be completed and submitted by the specified deadline, which must still be submitted on

time even if you missed class. Please contact the instructor and/or your classmates if you require assistance getting caught up.

## Missed Exams

**Without exception**, all exams must be written at the scheduled times. However, it is understood that emergency circumstances occur (e.g. severe illness or emergency in the immediate family); for such circumstances accommodation may be offered at the discretion of the instructor, provided the student: (a) notifies the instructor **in advance** of the exam (not after), and (b) provides documented evidence of the circumstance (i.e. medical documentation or other) IF possible and reasonable to do so. If a student is absent for an exam and has not made arrangements with the instructor in advance, a grade of zero will be applied.

In the event of emergency circumstances, it is at the instructor's discretion whether to administer a make-up exam or adjust the weighting of the final exam to make up the missing marks. Note that work commitments and holiday travel are NOT considered emergency circumstances. Camosun College's Office of the Registrar may schedule final examinations at any time during the examination period. All students are expected to write the final exam at the time and date set by the Registrar. Students should therefore avoid making travel, employment, or other commitments for this time period until the final exam schedules are finalized and posted.

## Assignments

There will be lecture and lab assignments throughout the course. It is the student's responsibility to be informed of any work expected and the dates the work is due. Most lab assignments will be group work; and most lecture assignments will be individual work. When submitting your own individual assignment, be sure that it is your own work (keeping in mind student conduct requirements). This applies even if you are working with a study group - the work you submit must still be your own. For group assignments, each person in a group will receive the same mark on any group work. Please submit assignments in the format requested by the instructor. Incorrect formatting will result in late penalties and delayed grading.

For most D2L quizzes you will have 2 attempts and the average of the two scores will be recorded. Please make sure to read the description for each quiz prior to starting a quiz.

## Late Penalties

All assignments must be handed in on or before the specified due date and time. If you experience technical difficulties in submitting assignments, please contact the instructor right away. If you have technical issues, you will not receive late marks but only if you contact your instructor prior to the due date. Late assignments will be graded but marks equivalent to **10%** of the total value of the assignment will be deducted for each day past the deadline, including weekends. Late assignments will not be accepted once marked assignments have been returned to the class.

**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.

## Study Habits

Good (and regular!!) study habits are required to do well in this course. You should plan on spending about 6 hours per week outside of scheduled class time for the completion of assignments and for general studying. Online study groups can help make this more fun (e.g. Zoom, Skype, Facetime, etc.).

Lecture notes will be posted on D2L in point form. These should be used as a study guide, in addition to additional material that is provided. You will need to write down additional notes for examples and explanations given during online lectures. It is also recommended to transcribe these notes into a study-

friendly format after each lecture. Study these notes before the next class to prepare yourself for new material, which will often build on previously covered material.

These course expectations and policies will be discussed during the first week of classes. If you have any further questions, please contact the instructor.

## 8. College Supports, Services and Policies



### Immediate, Urgent, or Emergency Support

If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts

@ <http://camosun.ca/about/mental-health/emergency.html> or <http://camosun.ca/services/sexual-violence/get-support.html#urgent>

### College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at <http://camosun.ca/>

### College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at <http://camosun.ca/about/policies/>. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence, Student Ancillary Fees, Academic Integrity, Grade Review & Appeals, Student Misconduct and Academic Accommodations for Students with Disabilities and Student Penalties and Fines.

## A. GRADING SYSTEMS <http://camosun.ca/about/policies/index.html>

The following two grading systems are used at Camosun College:

### 1. 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     |                                      | 1                       |
| 0-49       | F     | Minimum level has not been achieved. | 0                       |

## 2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

| Grade | Description   |
|-------|---|
| COM   | The student has met the goals, criteria, or competencies established for this course, practicum or field placement.   |
| DST   | The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement. |
| NC    | The student has not met the goals, criteria or competencies established for this course, practicum or field placement.  |

## B. 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 at <http://camosun.ca/about/policies/index.html> 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 are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.   |
| 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. |

## Course Schedule for Biology 126-D03A/B Winter 2021

Note: The following is a **tentative** schedule of lecture and lab activities. It is subject to change, and any changes to this schedule will be announced in online sessions and posted on D2L.

| Week   | Lecture Topics   | Textbook Chapter* | Lab Topics   |
|--|--|-------------------|--|
| 1 (Jan 11-16)  | Course Introduction<br>Characteristics of Life                                 | 1,4,5,6           | Lab Introduction Dilutions, Graphing               |
| 2 (Jan 18-22)  | Characteristics of Life cont'd<br>Metabolism                                   | 1,4,5,6<br>8      | Lab 1: Standard Curve                              |
| 3 (Jan 25-29)  | Cellular Respiration   | 9                 | Lab 2: Enzyme Activity                             |
| 4 (Feb 1-5)  | Photosynthesis   | 10                | Lab 3: Cellular Respiration                        |
| 5 (Feb 8-12)   | Plant Growth<br><b>MIDTERM 1 – Feb 10</b>                                      | 39                | Start Lab 4: Plant Growth<br>Lab 5: Photosynthesis |
| 6<br><b>(College closed –<br/>Reading week)</b>                              | <b>READING WEEK – NO LECTURE OR LAB</b>  |                   |  |
| 7 (Feb 22-26)  | Membrane Structure & Function<br>Cell Communication                            | 7<br>11           | Continue Lab 4: Plant Growth<br><b>LAB EXAM 1</b>  |
| 8 (March 1-5)  | Mitosis & Cell Cycle   | 12                | Lab 6: Diffusion & Osmosis                         |
| 9 (March 8- 12)  | Meiosis  | 13                | Complete Lab 4: Plant Growth                       |
| 10 (March 15-19)   | Genetic Inheritance<br><b>MIDTERM 2 – March 17</b>                             | 14,15             | Lab 7: Cell Division                               |
| 11 (March 22-26)   | Genetic Inheritance cont'd<br>DNA Replication                                  | 14,15<br>16       | Lab 8: Genetic Inheritance                         |
| 12 (March 29- April<br>1) <b>College closed<br/>April 2- Good<br/>Friday</b> | DNA Replication cont'd<br>From Gene to Protein                                 | 16<br>17          | Lab 9: PCR   |
| 13 (April 6-9)<br><b>College closed<br/>April 4- Easter<br/>Monday</b>       | From Gene to Protein cont'd<br>Hormones and Endocrine<br>System                | 17<br>45          | No Lab- College closed Monday                      |
| 14 (April 12-16)   | Neurons and Nervous System   | 48,49             | <b>LAB EXAM 2</b>                                  |
| <b>April 19-27</b>   | <b>Final Exam (to be scheduled by College Registrar and posted on Camlink)</b> |                   |  |

\*Textbook chapters noted here will be covered, at least in part. However, in some cases we will not be covering the whole chapter in Biology 126. Only the topics covered during class will be tested on exams.

### **IMPORTANT DATES:**

Jan 20: Add/Drop deadline, Jan 22: Fee deadline, March 16: Last day to drop without academic penalty