

# COURSE SYLLABUS



**COURSE TITLE:** BIOL-126: Physiological Basis of Life

**CLASS SECTION:** 001A, 001B

**TERM:** W2022

**COURSE CREDITS:** 4

**DELIVERY METHOD(S):** In Person

Camosun College campuses are located on the traditional territories of the Lək̓ʷəŋən and W̱SÁNEĆ peoples. We acknowledge their welcome and graciousness to the students who seek knowledge here.

Learn more about Camosun's [Territorial Acknowledgement](#).

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For COVID-19 information please visit <https://legacy.camosun.ca/covid19/index.html>

*Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable explanation in advance, you will be removed from the course and the space offered to the next waitlisted student.*

## INSTRUCTOR DETAILS

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**NAME:** Sarah Cockburn

**EMAIL:** CockburnS@camosun.bc.ca

**OFFICE:** Fisher 352

**HOURS:** Collaborate office hours (Online): Tues 12-12:50,

In person office hours (F352): W 1:30-2:20PM, W 5:30-6PM, Th 1:30-2:20PM, W 5:30-6PM

*As your course instructor, I endeavour to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me. Camosun College is committed to identifying and removing institutional and social barriers that prevent access and impede success.*

## CALENDAR DESCRIPTION

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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.

### PREREQUISITE(S):

One of:

- C in English 12
- C in Camosun Alternative

And one of:

- C+ in Biology 12
- C+ in Camosun Alternative

#### CO-REQUISITE(S):

Not Applicable

#### EXCLUSION(S):

Not Applicable

#### COURSE LEARNING OUTCOMES / OBJECTIVES

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Upon completion of this course a 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.

#### REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

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(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 Biology 2e, Openstax by Rice University, available to download for free at <https://openstax.org/details/books/biology-2e>.

(b) **Lab Resources:**

- i) Lab procedures and related assignments will be posted on D2L prior to each scheduled lab. Please read each lab procedure in advance and bring a print copy to each lab period.
- ii) Lab coats must be worn for each lab.
- iii) Microsoft Word and Excel are required for completing lab assignments. A FREE version of Office 365 is available for all students, go to: <https://legacy.camosun.ca/services/its/other-services.html>.

(c) **Lecture Resources:**

Lectures are based on PowerPoint slides and will be delivered in person. 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.

COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY / EVALUATION

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The following schedule and course components are subject to change with reasonable advance notice, as deemed appropriate by the instructor.

Lecture: W/Th 2:30-3:50 PM F266

Labs: 001A- Mon 2:30-5:20 PM F224

001B- Wed 9:30 - 12:20 PM F224

WEEK #	DATES	LECTURE TOPICS	LAB TOPICS
1	Jan 10-14	Course Introduction Characteristics of Life	Lab Introduction, Dilutions, Graphing
2	Jan 17-21	Characteristics of Life cont'd Metabolism	Lab 1: Standard Curve
3	Jan 24-28	Cellular Respiration	Lab 2: Enzyme Activity
4	Jan 31-Feb 4	Photosynthesis	Lab 3: Cellular Respiration
5	Feb 7-11	Plant Growth <b>LECTURE MIDTERM #1 (Feb 10th)</b>	Lab 4: Photosynthesis
6	Feb 14-18	Membrane Structure & Function Cell Communication	<b>LAB EXAM #1</b>
7	Feb 21-25 <b>Family day and Reading Break</b>	<b>NO CLASSES, READING BREAK</b>	<b>NO LAB, READING BREAK</b>
8	Feb 28-Mar 4	Mitosis & Cell Cycle Meiosis	Lab 5: Plant Hormones Part 1 Lab 6: Mitosis and Meiosis
9	Mar 7-11	Meiosis cont'd Genetic Inheritance	Lab 7: Diffusion & Osmosis
10	Mar 14-18	<b>LECTURE MIDTERM #2 (March 17th)</b> Genetic Inheritance cont'd	Lab 5: Plant Hormones Part 2 Lab 8: Drosophila Part 1
11	Mar 21-25	Genetic Inheritance cont'd DNA Replication	Lab 8: Drosophila Part 2 Lab 9: PCR Part 1
12	Mar 29-Apr 1	DNA Replication cont'd From Gene to Protein	Lab 9: PCR Part 2
13	April 4-8	From Gene to Protein cont'd Hormones and Endocrine System	Review
14	April 11-15 <b>(Good Friday College closed Apr 15)</b>	Neurons and Nervous System	<b>LAB EXAM #2</b>

Apr 19-27 (Eater Monday College closed Apr 18)	<b>FINAL EXAM</b> (Date and time scheduled by College Registrar)
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Students registered with the Centre for Accessible Learning (CAL) who complete quizzes, tests, and exams with academic accommodations have booking procedures and deadlines with CAL where advanced noticed is required. Deadlines scan be reviewed on the [CAL exams page](http://camosun.ca/services/accessible-learning/exams.html). <http://camosun.ca/services/accessible-learning/exams.html>

## EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
Midterm 1 (Feb 10th)	12
Midterm 2 (March 17)	12
Lab Exam 1 (During scheduled lab the week of Feb 14-18)	11
Lab Exam 2 (During scheduled lab the week the week of Arp 11-15th)	11
Lecture Assignments and D2L quizzes	12
Lab Assignments	20
In class assignments/activities/quizzes/participation	2
Final Exam (TBA)	20
<b>TOTAL</b>	<b>100%</b>

If you have a concern about a grade you have received for an evaluation, please come and see me as soon as possible. Refer to the [Grade Review and Appeals](http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf) policy for more information.  
<http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf>

### Notes about evaluation methods:

- Lecture Quizzes on D2L are open-book and use of the PowerPoint slides is encouraged. Each quiz allows for **2 attempts**, with an average of the two being kept. A missed submission will result in a grade of zero for that quiz. Note: You will only have one attempt at the Chapter 14/15 quiz

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.

- Lab Assignments will be posted online prior to each lab period and will be due at the beginning of the following lab period, unless otherwise specified by the instructor. Lab Assignments are completed in assigned lab groups, with one copy submitted per group. These are assignments must be submitted as a typed hard copy, and with the same late penalty as the Lecture Assignments (as described above).

- Lecture Midterms take place during regular lecture hours and are NOT cumulative, whereas the Final Exam takes place during the final exam period (as scheduled by the College Registrar) and IS cumulative. These exams are strictly based on lecture content and are all closed-book exams. The use of phones, smart watches, or other electronic devices during exams is NOT permitted and will result in a zero on the exam.

- Lab Exams take place during regular lab hours and are NOT cumulative. These exams are strictly based on lab content and are all closed-book exams. The use of phones, smart watches, or other electronic devices during exams is NOT permitted and will result in a zero on the exam. Please bring a calculator to Lab Exams.

## COURSE GUIDELINES & EXPECTATIONS

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### Lecture Attendance

Aside from the first two weeks of classes, attendance will NOT be required for lectures (EXAMS are the only exception to this). However, attending and participating in lectures is strongly recommended to ensure success in this course. If a class is missed, the student is responsible for arranging to obtain information such as notes, handouts, assignments, and announcements.

### Laboratory Attendance

Laboratory attendance for this course is **mandatory**. It is expected that students will read and prepare for each lab BEFORE arrival. Lateness in arriving, failure to attend the lab, or leaving the lab before its scheduled finish time will result in forfeiting credit for that lab, including any written assignments. Exceptions can be made **at the instructor's discretion** in legitimate cases of emergency (e.g. significant illness); in such cases the instructor must receive **advance notification** to grant approval for any accommodation.

### Written Assignments

All assignments must be submitted according to the instructor's criteria. A **professional format** is expected, i.e. a neat, legible, clean copy. "Rough" drafts risk rejection and a subsequent late penalty or reduced marks. If the assignment is more than one page, separate pages **must be stapled**.

Unless otherwise stated, all assignments are due at the beginning of the lab/class on the due date. As described on the previous page, late assignments will be accepted with a penalty of **10% per day**, including weekends. Late assignments will not be accepted once marked assignments have been returned to the class.

### Plagiarism

You are encouraged to discuss assignments with your classmates, however, **individual assignments must be your own individual work – beware of 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>).

Except where work is assigned to a group, all written work must be done individually. Plagiarism is a serious offence and is considered to be academic misconduct, and **will not be tolerated**. A student caught plagiarizing will forfeit all credit for the assignment and a note will be sent to the Dean regarding the student's behaviour.

### Missed Exams

All exams must be written at the scheduled times. However, it is understood that emergency circumstances occur (e.g. 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 **acceptable documentation** of the circumstance where possible (i.e. medical documentation).

In the event of emergency circumstances, it is at the instructor's discretion whether to administer an oral or written make-up exam.

***\* HOLIDAYS, SCHEDULED FLIGHTS, AND WORK ARE NOT CONSIDERED TO BE EMERGENCIES \****

Be sure not to make travel or work plans for the end of semester until the final exam schedule is finalized and posted. Please ask any family members who might make travel plans on your behalf to consult you before booking tickets.

### **Cheating**

A student caught cheating on an exam will forfeit all credit for that exam and perhaps for the course. Cheating is a serious offence and is considered to be academic misconduct. Cheating includes but is not limited to:

- (a) using unauthorized materials or resources in a quiz/exam, and
- (b) 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.

### **Student Safety**

Consider the following laboratory safety practices. These are required to participate in all laboratory activities. Students must sign a safety contract in the first lab and follow all safety rules and procedures.

<b>Lab footwear</b>	<ul style="list-style-type: none"><li>• For safety reasons <b>WorkSafeBC</b> mandates that students are <b>required</b> to wear closed shoes in all lab times. Flip flops, sandals, or shoes with holes are NOT acceptable.</li></ul>
<b>Lab coat</b>	<ul style="list-style-type: none"><li>• Due to the handling of chemicals in this lab, lab coats are <b>required</b> to participate in each lab for this course.</li></ul>
<b>Eating &amp; drinking</b>	<ul style="list-style-type: none"><li>• Absolutely <b>NOTHING</b> may be ingested while in the lab. Chewing gum and applying makeup or lip balm are similarly prohibited.</li><li>• If something must be consumed, then it may be taken out of the lab.</li></ul>
<b>Hair</b>	<ul style="list-style-type: none"><li>• Long hair must be tied back securely.</li></ul>
<b>Hand washing</b>	<ul style="list-style-type: none"><li>• Hands should be thoroughly washed <b>BEFORE</b> leaving the lab.</li></ul>

### **Study Habits**

Good (and regular!!) study habits are required to do well in this course. You should plan on a minimum of 6 hours outside of scheduled class time for the completion of assignments and for general studying. Joining a study group can help make this more fun.

Lecture notes will be posted on D2L in PowerPoint form. These should be used as a study guide, not as your sole source of information. You will need to write down additional key words for examples and explanations given during lecture and read the chapters assigned to each week. It is also recommended practice to transcribe these notes into a study-friendly format after each lecture, incorporating additional information from your textbook. Study these notes before the next class to prepare yourself for new material, which will often build on previously covered material.

Please take advantage of office hours if you need assistance with course material or assignments. If you would like to meet not during my scheduled office hours, simply arrange an appointment by e-mail and I will be very pleased to meet with you at a mutually convenient time.

## STUDENT RESPONSIBILITY

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Enrolment at Camosun assumes that the student will become a responsible member of the College community. As such, each student will display a positive work ethic, assist in the preservation of College property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

## SUPPORTS AND SERVICES FOR STUDENTS

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Camosun College offers a number of services to help you succeed in and out of the classroom. For a detailed overview of the supports and services visit <http://camosun.ca/students/>.

Academic Advising	<a href="http://camosun.ca/advising">http://camosun.ca/advising</a>
Accessible Learning	<a href="http://camosun.ca/accessible-learning">http://camosun.ca/accessible-learning</a>
Counselling	<a href="http://camosun.ca/counselling">http://camosun.ca/counselling</a>
Career Services	<a href="http://camosun.ca/coop">http://camosun.ca/coop</a>
Financial Aid and Awards	<a href="http://camosun.ca/financialaid">http://camosun.ca/financialaid</a>
Help Centres (Math/English/Science)	<a href="http://camosun.ca/help-centres">http://camosun.ca/help-centres</a>
Indigenous Student Support	<a href="http://camosun.ca/indigenous">http://camosun.ca/indigenous</a>
International Student Support	<a href="http://camosun.ca/international/">http://camosun.ca/international/</a>
Learning Skills	<a href="http://camosun.ca/learningskills">http://camosun.ca/learningskills</a>
Library	<a href="http://camosun.ca/services/library/">http://camosun.ca/services/library/</a>
Office of Student Support	<a href="http://camosun.ca/oss">http://camosun.ca/oss</a>
Ombudsperson	<a href="http://camosun.ca/ombuds">http://camosun.ca/ombuds</a>
Registration	<a href="http://camosun.ca/registration">http://camosun.ca/registration</a>
Technology Support	<a href="http://camosun.ca/its">http://camosun.ca/its</a>
Writing Centre	<a href="http://camosun.ca/writing-centre">http://camosun.ca/writing-centre</a>

If you have a mental health concern, please contact Counselling to arrange an appointment as soon as possible. Counselling sessions are available at both campuses during business hours. If you need urgent support after-hours, please contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.

## COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

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### Academic Accommodations for Students with Disabilities

The College is committed to providing appropriate and reasonable academic accommodations to students with disabilities (i.e. physical, depression, learning, etc). If you have a disability, the [Centre for Accessible Learning](#) (CAL) can help you document your needs, and where disability-related barriers to access in your courses exist, create an accommodation plan. By making a plan through CAL, you can ensure you have the appropriate academic accommodations you need without disclosing your diagnosis or condition to course instructors. Please visit the CAL website for contacts and to learn how to get started:

<http://camosun.ca/services/accessible-learning/>

### Academic Integrity

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.13.pdf> for policy regarding academic expectations and details for addressing and resolving matters of academic misconduct.

### Academic Progress

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.1.pdf> for further details on how Camosun College monitors students' academic progress and what steps can be taken if a student is at risk of not meeting the College's academic progress standards.

### Course Withdrawals Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.2.pdf> for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit <http://camosun.ca/learn/fees/#deadlines>.

### Grading Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf> for further details about grading.

### Grade Review and Appeals

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf> for policy relating to requests for review and appeal of grades.

### Mandatory Attendance for First Class Meeting of Each Course

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable reason in advance, you will be removed from the course and the space offered to the next waitlisted student. For more information, please see the "Attendance" section under "Registration Policies and Procedures"

(<http://camosun.ca/learn/calendar/current/procedures.html>) and the Grading Policy at

<http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf>.



### Medical / Compassionate Withdrawals

Students who are incapacitated and unable to complete or succeed in their studies by virtue of serious and demonstrated exceptional circumstances may be eligible for a medical/compassionate withdrawal. Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.8.pdf> to learn more about the process involved in a medical/compassionate withdrawal.

### Sexual Violence and Misconduct

Camosun is committed to creating a campus culture of safety, respect, and consent. Camosun's Office of Student Support is responsible for offering support to students impacted by sexual violence. Regardless of when or where the sexual violence or misconduct occurred, students can access support at Camosun. The Office of Student Support will make sure students have a safe and private place to talk and will help them understand what supports are available and their options for next steps. The Office of Student Support respects a student's right to choose what is right for them. For more information see Camosun's Sexualized Violence and Misconduct Policy: <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.9.pdf> and [camosun.ca/sexual-violence](http://camosun.ca/sexual-violence). To contact the Office of Student Support: [oss@camosun.ca](mailto:oss@camosun.ca) or by phone: 250-370-3046 or 250-3703841

### Student Misconduct (Non-Academic)

Camosun College is committed to building the academic competency of all students, seeks to empower students to become agents of their own learning, and promotes academic belonging for everyone. Camosun also expects that all students to conduct themselves in a manner that contributes to a positive, supportive, and safe learning environment. Please review Camosun College's Student Misconduct Policy at <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf> to understand the College's expectations of academic integrity and student behavioural conduct.

**Changes to this syllabus:** Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.