

COURSE SYLLABUS



COURSE TITLE: BIOL-126-Physiological Basis of Life

CLASS SECTION: 001A & 001B

TERM: 2024F

COURSE CREDITS: 3

DELIVERY METHOD(S): In person lectures and labs

Camosun College respectfully acknowledges that our campuses are situated on the territories of the Ləkʷəŋən (Songhees and Kosapsum) and WSÁNEĆ peoples. We honour their knowledge and welcome to all students who seek education here.

INSTRUCTOR DETAILS

NAME: Laura Biggs

EMAIL: BiggsL@camosun.ca

OFFICE: Fisher Building, Room 352, Lansdowne Campus

HOURS: Mondays 10:00-11:30am, Tuesdays 4:00-5:30pm, Wednesdays 12:30-1:30pm, or by appointment

(Other meeting times can be arranged on campus or online if these times don't fit with your schedule.)

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

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 Anatomy and Physiology 12

C+ in Biology 11

C+ in Camosun Alternative

CO-REQUISITE(S): n/a

EQUIVALENCIES: BIOL 226

COURSE LEARNING OUTCOMES / OBJECTIVES

Upon successful 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

(a) **Recommended Textbook:**

Campbell Biology, Canadian Edition, 3rd Ed.* (2020). Pearson Education, Inc., San Francisco, CA.

*Note: Campbell Biology, Canadian Edition, 1st or 2nd Ed. or Campbell Biology, US Edition, 8th, 9th, or 10th Ed. are also suitable textbooks. Another textbook option, although not as comprehensive, is Biology 2e, Openstax by Rice University, available for free download: <https://openstax.org/details/books/biology-2e>.

(b) **Lab Resources:**

i) The lab manual is required for this course, and may be purchased from the bookstore or printed from D2L. Please read each lab procedure in advance and bring a print copy to each lab period. Lab assignments will be posted on D2L.

ii) Lab coats must be worn for each lab.

iii) A calculator is required for labs, lab assignments, and lab exams.

iv) Microsoft Word and Excel are required for completing lab assignments. A FREE version of Microsoft 365 is available for all students, go to: <https://camosun.ca/services/its/software-other-services>.

(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 and may be downloaded or printed to help follow the lectures. Optional additional resources (e.g. videos, websites) will also be available on D2L for study purposes.

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

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

Lectures: 001AB Mondays 8:30am-9:50am Fisher 268
001AB Wednesdays 2:30pm-3:50pm Fisher 268

Labs: 001A Tuesdays 6:30pm-9:20pm Fisher 224
001B Wednesdays 9:30am-12:20pm Fisher 224

WEEK #	DATES	LECTURE TOPICS	LAB TOPICS
1	Sept. 2-6	NO CLASS SEPTEMBER 2 Characteristics of Life	Course and Lab Introduction
2	Sept. 9-13	Characteristics of Life cont'd Metabolism	Lab Intro: Dilutions & Graphing
3	Sept. 16-20	Cellular Respiration	Lab 1: Standard Curve
4	Sept. 23-27	Photosynthesis	Lab 2: Enzyme Activity
5	Sept. 30-Oct. 4	NO CLASS SEPTEMBER 30 LECTURE MIDTERM #1 (Weds Oct 2)	Lab 3: Cellular Respiration
6	Oct. 7-11	Plant Growth Membrane Structure & Function	Lab 4: Photosynthesis
7	Oct. 14-18	NO CLASS OCTOBER 14 Membrane Structure & Function cont'd	Lab Exam Review
8	Oct. 21-25	Cell Communication Mitosis & Cell Cycle	LAB EXAM #1 (Oct 22/23)
9	Oct. 28-Nov. 1	Meiosis	Lab 5: Plant Hormones Part 1 Lab 6: Mitosis and Meiosis
10	Nov. 4-8	LECTURE MIDTERM #2 (Wed Nov 6)	Lab 7: Diffusion & Osmosis
11	Nov. 11-15	NO CLASS NOVEMBER 11 Genetic Inheritance	Lab 5: Plant Hormones Part 2 Lab 8: Drosophila Part 1
12	Nov. 18-22	Genetic Inheritance cont'd DNA Replication	Lab 8: Drosophila Part 2 Lab 9: PCR Part 1
13	Nov. 25-29	DNA Replication cont'd From Gene to Protein	Lab 9: PCR Part 2 Lab Exam Review
14	Dec. 2-6	Hormones and Endocrine System Neurons and Nervous System	LAB EXAM #2 (Dec 3/4)
	Dec. 9-17	LECTURE FINAL EXAM (Date and time scheduled by College Registrar)	

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 notice is required. Deadlines can be reviewed on the [CAL exams page](https://camosun.ca/services/academic-supports/accessible-learning/academic-accommodations-exams). <https://camosun.ca/services/academic-supports/accessible-learning/academic-accommodations-exams>

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
Lecture Quizzes on D2L (x 13-14)	10%
Lecture Assignments (x 4-5)	10%
Group Lab Assignments (x 9)	20%
Lecture Midterm Exam #1 – Wednesday October 2	10%
Lecture Midterm Exam #2 – Wednesday November 6	10%
Lab Exam #1 – Tuesday/Wednesday October 22/23	10%
Lab Exam #2 – Tuesday/Wednesday December 3/4	10%
Lecture Final Exam (Date TBA)	20%
TOTAL	100%

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. Quizzes for each completed lecture unit are due on the day prior to each lecture exam at 11:59pm (**no late submissions accepted**). Each quiz has no time limit and allows for **two attempts**, with your highest grade of the two being kept. A missed submission will result in a grade of zero for that quiz.
- **Lecture Assignments** will be posted on D2L and can be submitted as a hard copy or uploaded to D2L. These assignments must be completed **individually**. 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 on D2L 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 assignments must be **typed** and must be submitted as a hard copy or uploaded to D2L in the appropriate dropbox, with the same late penalty as the Lecture Assignments (**10%** per day, 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.

Lecture Attendance

Attendance will not be required for lectures (EXAMS are the only exception to this). However, attending and participating in lectures will be an important part of succeeding in this course, as there will be additional explanations and examples to support learning. If a class is missed, the student is responsible for arranging to obtain information such as notes, handouts, assignments, and announcements.

Laboratory Attendance

In order to pass the course, students are required to meet the minimum lab attendance, participation, and completion requirements:

- Laboratory activities involve practical application of your knowledge as well as development of lab techniques and manual skills. Development of these skills is a requirement to meet the Course Learning Outcomes. Meeting Course Learning Outcomes is a requirement for gaining credit in the course, as well as ensuring pre-requisite and transferability standards are met.
- Laboratory activities are in-person activities; attendance and participation is **mandatory**. Online alternatives are NOT available.
- Laboratory attendance will be monitored by a sign-in sheet in the lab. It is the student's responsibility to record their attendance using this sheet. Attendance from the sign-in sheet will be transferred to D2L by your instructor. It is the student's responsibility to monitor their attendance progress.
- Arriving late to the lab may result in a missed opportunity to sign in.

Guidelines for missed labs:

- Students who miss a laboratory session have an obligation to seek out concessions directly from their instructor in a timely manner, BEFORE the lab period begins. If notification is provided AFTER the lab period begins, concessions may not be available.
- If a student misses up to three (3) laboratory sessions, they are still eligible to meet the Learning Outcomes for the course. Concessions offered for the first three (3) missed laboratory sessions will depend on the reason for the laboratory absence and is at the instructor's discretion. Concessions may include writing up the laboratory report with provided data or omitting the lab.
- **If a student misses a total of four (4) or more laboratory sessions for ANY reason** (including but not limited to: life circumstances, significant illness or family/pet emergency, planned vacations, family events, work commitments, childcare or eldercare commitments, competitive athletic events), they will be unable to meet the Course Learning Outcomes and will receive a **failing grade (F) in the course**, regardless of marks received on graded lecture and lab components. Exceptions will only be considered through an academic concession granted by the instructor or Dean/Associate Dean.
- This guideline applies to laboratory activities only; for missed Lab Exams please see the "Missed Exams" section on the following page.
- Please note that if you are suffering from a serious medical illness that prevents you from fully participating in the course, Camosun College has a Compassionate Medical Withdrawal Policy (<https://camosun.ca/services/forms#medical>).

Assignments

All assignments must be submitted according to the instructor's criteria. A **professional format** is expected, i.e. a neat, legible, clean copy. Incorrectly formatted assignments 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. For group assignments, each person in a group will receive the same mark on any group work. The only exception to this is when a group member fails to contribute, resulting in a grade of zero for that individual on that particular assignment.

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.

Except where work is assigned to a group, all written work must be done individually. Plagiarism is a serious offence that is considered to be academic misconduct and **will not be tolerated**. A student caught plagiarizing will forfeit all credit for the assignment and documentation will be sent to the Chair and Dean for their records. Please visit the link to the Academic Integrity Policy later in this syllabus for more information.

Missed Exams

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 notifies the instructor **in advance** of the exam (not after).

In the event of emergency circumstances, it is at the instructor’s discretion whether to administer a make-up exam or adjust exam grade weighting accordingly.

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

Be sure not to make travel, work, or other personal 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 with 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’s Academic Integrity policy.

Student Safety

The following laboratory safety practices 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.

Lab footwear	<ul style="list-style-type: none">• For safety reasons WorkSafeBC mandates that students are required to wear closed shoes in all lab times. Flip flops, sandals, or shoes with holes are NOT acceptable.
Lab coat	<ul style="list-style-type: none">• Due to the handling of chemicals in this lab, lab coats are required to participate in each lab for this course.

Eating & drinking	<ul style="list-style-type: none"> • Absolutely NOTHING may be ingested while in the lab. Chewing gum and applying makeup or lip balm are similarly prohibited. • If something must be consumed, then it may be taken out of the lab.
Hair	<ul style="list-style-type: none"> • Long hair must be tied back securely.
Hand washing	<ul style="list-style-type: none"> • Hands should be thoroughly washed BEFORE leaving the lab.

Study Habits

This course covers a high volume of material, so attending each lecture and lab is imperative for success. Come to each lecture and lab prepared, having pre-read the material and reviewed any relevant textbook pages. Regularly check D2L for updates and other communication. Mark your calendar with the important dates and deadlines from this syllabus to help you stay on track, and frequently look ahead so you can plan for upcoming exams or due dates. You should plan on spending a minimum of 6 hours outside of scheduled class time for completion of assignments and general studying. It is recommended to set aside specific study times in your weekly schedule to help with time management. These habits will help you throughout your academic career.

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 examples and explanations given during lecture and read the corresponding textbook pages. It is also recommended to transcribe your 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.

STUDENT RESPONSIBILITY

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

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 camosun.ca/services.

Support Service	Website
Academic Advising	camosun.ca/services/academic-supports/academic-advising
Accessible Learning	camosun.ca/services/academic-supports/accessible-learning
Counselling	camosun.ca/services/health-and-wellness/counselling-centre
Career Services	camosun.ca/services/co-operative-education-and-career-services
Financial Aid and Awards	camosun.ca/registration-records/financial-aid-awards

Support Service	Website
Help Centres (Math/English/Science)	camosun.ca/services/academic-supports/help-centres
Indigenous Student Support	camosun.ca/programs-courses/iecc/indigenous-student-services
International Student Support	camosun.ca/international
Learning Skills	camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills
Library	camosun.ca/services/library
Office of Student Support	camosun.ca/services/office-student-support
Ombudsperson	camosun.ca/services/ombudsperson
Registration	camosun.ca/registration-records/registration
Technology Support	camosun.ca/services/its
Writing Centre	camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills

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

Academic Integrity

Students are expected to comply with all College policy regarding academic integrity; which is about honest and ethical behaviour in your education journey. The following guide is designed to help you understand your responsibilities: <https://camosun.libguides.com/academicintegrity/welcome>
Please visit <https://camosun.ca/sites/default/files/2021-05/e-1.13.pdf> for Camosun's Academic Integrity policy and details for addressing and resolving matters of academic misconduct.

Academic Accommodations for Students with Disabilities

Camosun College is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging appropriate academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a documented disability and think you may need accommodations, you are strongly encouraged to contact the Centre for Accessible Learning (CAL) and register as early as possible. Please visit the CAL website for more information about the process of registering with CAL, including important deadlines: <https://camosun.ca/cal>

Academic Progress

Please visit <https://camosun.ca/sites/default/files/2023-02/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 <https://camosun.ca/sites/default/files/2021-05/e-2.2.pdf> for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit <https://camosun.ca/registration-records/tuition-fees#deadlines>.

Grading Policy

Please visit <https://camosun.ca/sites/default/files/2021-05/e-1.5.pdf> for further details about grading.

Grade Review and Appeals

Please visit <https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf> for policy relating to requests for review and appeal of grades.

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 (see [Medical/Compassionate Withdrawals policy](#)). Please visit <https://camosun.ca/services/forms#medical> to learn more about the process involved in a medical/compassionate withdrawal.

Sexual Violence

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 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 Policy:

<https://camosun.ca/sites/default/files/2021-05/e-2.9.pdf> and camosun.ca/services/sexual-violence-support-and-education.

To contact the Office of Student Support: oss@camosun.ca or by phone: 250-370-3046 or 250-370-3841

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 <https://camosun.ca/sites/default/files/2021-05/e-2.5.pdf> to understand the College's expectations of academic integrity and student behavioural conduct.

Looking for other policies?

The full suite of College policies and directives can be found here: <https://camosun.ca/about/camosun-college-policies-and-directives>

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.



<https://www.amoebasisters.com/parameciumparlorcomics/category/photosynthesis-and-respiration>