

COURSE SYLLABUS



COURSE TITLE: BIOL-126: Physiological Basis of Life
CLASS SECTION: 002A, 002B
TERM: Winter 2024
COURSE CREDITS: 3
DELIVERY METHOD(S): In person lecture (3h) and labs (3h)

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](#).

INSTRUCTOR DETAILS

NAME: Thuy Nevado
EMAIL: nevadot@camosun.ca
OFFICE: Fisher 248A
HOURS: Mon 3-5 pm, Tues 3-4 pm, Wed 2-3pm or by appointment

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):

Not Applicable

EXCLUSION(S):

Not Applicable

COURSE LEARNING OUTCOMES / OBJECTIVES

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

(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 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. Lab procedures can also be found in the **Bio 126 lab manual which can be purchased** at the Camosun Bookstore. 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 and may be purchased at the Camosun Bookstore.
- iii) 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:**

An outline of the lecture notes will be available by Sunday evening for the upcoming week's lecture and posted on the course D2L site: <https://online.camosun.ca>. Students should download and bring a copy of the lecture notes to class so that they can follow along and add to the notes during the lecture. Assignments and other resources can also be found on the course D2L site.

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: 002AB Tuesdays and Thursdays 8:30-9:50am F266

Labs: 002B Wednesday 10:30am-1:20pm F224
002A Thursday 1:30pm-4:20pm F224

WEEK #	DATES	LECTURE TOPICS	LAB TOPICS
1	Jan 8-12	Course Introduction Characteristics of Life	Lab Introduction
2	Jan 15-19	Cells Metabolism	Dilutions & Graphing
3	Jan 22-26	Cellular Respiration	Lab 1: Standard Curve
4	Jan 29-Feb 2	Photosynthesis	Lab 2: Enzyme Activity
5	Feb 5-9	Plant Growth LECTURE MIDTERM #1 (Th Feb 8)	Lab 3: Cellular Respiration
6	Feb 12-16	Membrane Structure & Function Cell Communication	Lab 4: Photosynthesis
7	Feb 19 Feb 20-23	Family Day (College closed) Reading break	
8	Feb 26-Mar 1	Mitosis & Cell Cycle Meiosis	LAB EXAM #1
9	Mar 4-8	Meiosis cont'd Genetic Inheritance	Lab 5: Plant Hormones Part 1 Lab 6: Mitosis and Meiosis
10	Mar 11-15	Genetic Inheritance cont'd LECTURE MIDTERM #2 (Th Mar 14)	Lab 7: Diffusion & Osmosis
11	Mar 18-22	DNA Replication	Lab 5: Plant Hormones Part 2 Lab 8: Drosophila Part 1
12	Mar 25-28 Mar 29	From Gene to Protein Good Friday (College closed)	Lab 8: Drosophila Part 2 Lab 9: PCR Part 1
13	Apr 1 Apr 2-5	Easter Monday (College closed) Hormones and Endocrine System Neurons and Nervous System	Lab 9: PCR Part 2 Lab Exam Review
14	Apr 8-12	Neurons and Nervous System (cont.)	LAB EXAM #2
	Apr 15-23	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](http://camosun.ca/services/accessible-learning/exams.html). <http://camosun.ca/services/accessible-learning/exams.html>

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
Lecture Quizzes and Assignments (x 10-12)	15%
Prelab Quizzes (x 9-10)	5%
Group Lab Assignments (x 9)	20%
Lecture Midterm Exam #1 – Thursday, February 8	10%
Lecture Midterm Exam #2 – Thursday, March 4	10%
Lab Exam #1 – Wednesday or Thursday, Feb 28/29	10%
Lab Exam #2 – Wednesday or Thursday, April 10/11	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:

- Weekly review and practice of the lecture material will increase understanding, retention and help you to build a strong foundation on which to add new learning. To help you do this, a post lecture activity will be assigned on Thursday of each week and will be due the following Thursday at 11:59pm. The activity will be posted on D2L and will take the form of a lecture quiz.

- **Lecture Quizzes on D2L** are open-book but I encourage you to review the lecture notes first and use the quiz to check your understanding and retention. Quizzes will be available by Thursday each week, and due the following Thursday at 11:59pm (**no late submissions accepted**). Each quiz allows for a maximum of **2 attempts**, and the average grade of the two is recorded. A missed submission will result in a grade of zero for that quiz.

- **Prelab quizzes on D2L** will be short and open-book and designed to help prepare you for the upcoming lab. I encourage you to read the entire lab outline first, then use the quiz to check that you got the key points. This will help you to be an efficient and fully contributing member of your lab group. Quizzes will be available one week before the lab and due at the beginning of the lab period. You will have a maximum of **2 attempts** and the average grade will be recorded. A missed submission will result in a grade of zero for that quiz.

- **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 assignments must be typed and uploaded to D2L in the appropriate dropbox. Late assignments will be subject to a late penalty of **10%** per day. Late assignments will not be accepted once marked assignments have been returned.

- **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 notes, 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 notes, 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

Lecture Attendance

Attendance in the first week is required to maintain your registration. Attending and participating in lectures throughout the semester 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**. In order to pass the course, students are required to meet the minimum lab attendance, participation and completion requirements.

- Laboratory activities involve practical applications of your knowledge and manual skills development. 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 articulation, pre-requisite and transferability standards are met.
- Laboratory activities are in-person activities; attendance and participation are required. Online alternatives are not available.
- Laboratory attendance will be monitored by a sign-in/sign-out binder in the lab. It is your responsibility to record your attendance using this binder.
- Attendance from the sign-in/sign-out binder will be transferred to your D2L gradebook by your instructor. If you notice any discrepancies, please contact your instructor ASAP.
- If you arrive significantly late to the lab, you may miss the opportunity to sign-in and will be recorded as absent.

Missed Labs Guidelines:

- Students who will miss a laboratory session have an obligation to seek out concessions directly from their instructor in a timely manner, BEFORE the lab period occurs.
- If notification is provided AFTER the lab has occurred, concessions may not be available.
- If you miss a total of four (4) or more labs for any reason (including, but not limited to: life circumstances, legitimate illness or family/pet emergency, planned vacations, milestone family events, work commitments, childcare or eldercare commitments, competitive athletic events), you will be unable to meet the learning outcomes for the class and will receive a failing grade (F) in the entire course, regardless of marks received on graded lab and lecture components. Exceptions will only be considered through an academic concession granted by the instructor or Dean/Associate Dean.
- This guideline applies to in-person laboratory activities only; for missed Lab Exams, please see the section in this outline on Exams below.
- Please note that if you are suffering from a serious medical illness that prevents you from participating in this course, Camosun College has a Compassionate Medical Withdrawal Policy (<https://camosun.ca/services/forms#medical>)

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. Incorrectly formatted assignments risk rejection and a subsequent late penalty or reduced marks.

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, ideas, language or passages of another's writing (including information from internet sources or AI generated text) 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 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 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 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 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

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

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 PDF format and a copy should be brought to the lecture in a format that allows you to add additional information. It is good practice to transcribe these notes into a study-friendly format after each lecture, incorporating additional information from your textbook. You can do this by rewriting the notes in your own words and reorganizing the information into tables or concept maps. 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 <http://camosun.ca/students/>.

Academic Advising	http://camosun.ca/advising
Accessible Learning	http://camosun.ca/accessible-learning
Counselling	http://camosun.ca/counselling
Career Services	http://camosun.ca/coop
Financial Aid and Awards	http://camosun.ca/financialaid
Help Centres (Math/English/Science)	http://camosun.ca/help-centres
Indigenous Student Support	http://camosun.ca/indigenous

International Student Support	http://camosun.ca/international/
Learning Skills	http://camosun.ca/learningskills
Library	http://camosun.ca/services/library/
Office of Student Support	http://camosun.ca/oss
Ombudsperson	http://camosun.ca/ombuds
Registration	http://camosun.ca/registration
Technology Support	http://camosun.ca/its
Writing Centre	http://camosun.ca/writing-centre

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 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. To contact the Office of Student Support: 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.