Physiology and Cell Biology, Biol186 A01 (CRN 20262), A02 (20263) & A03 (20264), Department of Biology University of Victoria, BC Course Outline, Spring term 2025

Welcome to Biol186!

We acknowledge and respect the $l = k^w = \eta = \eta$ peoples on whose traditional territory the University of Victoria stands, and the Songhees, Esquimalt and WSÁNEĆ peoples whose historical relationships with the land continue to this day. We are thankful to be able to learn together on this land and strive to make the world a better place.

We welcome everyone to learn in this course and we respect every human being, including people from all ethnic backgrounds, religious beliefs, sexual orientations, genders, socioeconomic backgrounds and abilities.

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I. Your Teaching Team

- Dr. Barbara Ehlting (Course coordinator and teaching Cell Biology) email: <u>behlting@uvic.ca.</u> office Petch 005

Zoom link: Meeting ID: 554 111 0796, passcode: UVIC

https://uvic.zoom.us/my/biol360.officehour?pwd=eFRjYWUzY1hOc2lFL3U3VHc4R S8xUT09

Dr. B. Ehlting is the **course coordinator**, so if you have any lecture related issue (except lab business), that are not addressed in the course outline, please contact BE.

- *Dr. Jürgen Ehlting* (plant physiology) Email: <u>je@uvic.ca,</u> office hour by appointment, please email him.

- *Dr. Gautam Awatramani* (animal physiology) Email: <u>gautam@uvic.ca</u> office hour by appointment, please email him.

- *Kim Curry* (Guest lecture: Transcription and Translation) Email: <u>kimh@uvic.ca</u>, office hours by appointment, please email her.

- Dr. Colin MacLeod (Senior Lab Instructor)

Email: biologylabs@uvic.ca

Colin is the **Senior Lab Instructor**, so if you have any laboratory related issues, <u>which are not addressed in the laboratory manual posted on Labflow</u>, please contact him.

How to connect with us?

- We are happy to connect with you over email, but we ask that you respect everyone's time. Please **check published course information** (on Brightspace: in the course outline, announcements, in the lab manual on Labflow) **first**, before sending us questions. Many questions may have been answered already.

-The easiest way to connect is via email. If you email us, please add **'Biol186'** in the **subject line**, that way we can quickly scan our inboxes for your messages.

- Remember to keep **communication professional**. Emails should begin with a proper greeting, use complete sentences and real words in the body of the email and end with your name and student ID. Sending a professional email is different than sending a text message to a friend.

- Do you want to meet in person? Send us an email and we will arrange a meeting time. Office hours are for you to connect with us, discuss lecture or laboratory material, and for us to get to know each other.

- Do you want to know about our background? You can find out more on the Biol186 course Brightspace page under the heading 'Introduction to Biol186'!

II. Intended Learning Outcomes for Biology 186 Physiology and Cell Biology:

II.1. Goals for this course:

'Physiology and Cell Biology' will give you the **basic knowledge** you need for a deeper understanding of modern biology with applications in the fields of ecology, medicine, biotechnology, genetics and many more. Our main goal is to excite you about 'Physiology and Cell Biology' and introduce you to **terminology** and **general principles** of cell biology, plant and animal physiology, such as building blocks of cells, water transport in plants and the nervous system in animals. Whenever possible we will connect the basic principles with our daily lives.

II.2. At the end of this course, you will know the basic/basics...

- molecules of life: lipids, proteins, carbohydrates, DNA

- components of cells and their functions

- **cellular processes**, e.g. transport across membranes, functions of enzymes, osmosis, cellular respiration...

- plant structures and physiology, e.g. water transport and photosynthesis

- animal structures and physiology, e.g. thermoregulation and nervous systems

- of gene transcription and translation

- of properly using standard **laboratory equipment** and **techniques** such as pipettes, microscopy, spectrophotometry

- strategies on how to **collect, analyze** and **present** your own experimental **data**

- laboratory safety practices and procedures

- of the scientific method and how to think critically about experimental design

II.3. Throughout the course we expect you to...

- engage with lecture material by discussing in class questions with your peers

- exercise **responsible time management** by meeting all assessment deadlines, being punctual to lectures and laboratories, and being proactive, aiming for problem solving rather than complaining

- be respectful and collegial with peers and instructors

III.1 Designated Class Time and Location:

- Mondays & Thursdays at
- A01: 10:00 am 11:20 am in BWC B150
- A02: 1:00 pm 2:20 pm in BWC B150
- A03: 3:30 pm 4:50 pm in ECS 123
- Classes start Jan 6th and end April 4th2025.

Class time is our time together and critical for your active learning journey. We expect you to take an active part in this class by actively listening, asking questions and participating in discussion questions.

Biology 186 Lab Schedule - Spring 2025						
	Monday					
	Cun004	Cun018		Cun004	Cun018	Cun132
8:30 AM - 11:30 AM				B07	B08	
11:30 AM - 2:30 PM	B01	B02		B09	B10	B35
2:30 PM - 5:30 PM	B03	B04		B11	B12	
5:30 PM - 8:30 PM	B05	B06		B13	B14	
	Wednesday			Thursday		
	Cun004	Cun018		Cun004	Cun018	
8:30 AM - 11:30 AM	B15	B16		B23	B24	
11:30 AM - 2:30 PM	B17	B18		B25	B26	
2:30 PM - 5:30 PM	B19	B20		B27	B28	
5:30 PM - 8:30 PM	B21	B22		B29	B30	

III.2 Designated Laboratory Time and Location:

Our time in the Biol186 laboratory will help you develop usable practical skills and allow us to explore the topics taught in lecture. Thorough preparation for each lab will not only increase your grades, but also your enjoyment of the lab-activities.

IV. Lecture and Laboratory Schedule

1. Tentative Class Schedule

• Welcoming, Introduction to the class with everyone

• • •	Barbara Ehlting Molecules of life Cells and their components Membranes and transport Bioenergetics and enzymes Respiration	chapter 2, 3, 4, 5 chapter 6 chapter 7 chapter 8 chapter 9
•	<i>Kim Curry</i> DNA replication and gene expression	chapter 17 & 18
• • •	<i>Jürgen Ehlting</i> Plant structure and growth Plant transport systems Photosynthesis Plant control systems	chapter 35 chapter 36 chapter 10 chapter 39
• • •	<i>Gautam Awatramani</i> Circulation and gas exchange Thermoregulation and osmoregulation Neurons and nervous systems Sensory and motor mechanisms	chapter TBA chapter TBA chapter TBA chapter TBA

2. Laboratory Schedule

Date	Lab	Lab Exercise
Jan. 13-16	1	The scientific method (online)
Jan. 20-23	2	Lab Techniques I: Lab safety, microscopy, rainbow pipette exercise
Jan. 27-30	3	Lab Techniques II: Spectrophotometry, standard curve, data collection, and graphing with Excel
Feb. 3-6	4	Osmoregulation (online)
Feb. 10-13	5	Cell structure and function
Feb. 17-20		Reading break – No labs, no TA office hours

Feb. 24-27	6	Enzyme activity
Mar. 3-6	7	Plant structure and function
Mar. 10-13	8	Photosynthesis
Mar. 17-20	9	Cardiovascular physiology
Mar. 24-27	10	Human sensory physiology
Mar. 31 – Apr. 4		No labs

V.1 Course requirements

Prerequisites:

Any one of: Biology 11, life Sciences 11, Biology 12, Anatomy and Physiology 12, Biology 150A, Biology 150B, Biology 184, or placement exam. You need not have passed Biology 184 to take Biology 186.

A course in chemistry at either the high school (Chemistry 11 or 12) or university level (Chem 091, 101, 102, 150) is strongly recommended. If your chemistry is shaky, we recommend reading chapters 2 and 3 in the textbook OR take Biology 186 later, after you have studied some basic chemistry.

V.2 Repeating Courses

The <u>Undergraduate Calendar</u> stipulates that a student may not attempt a course a third time without the prior approval of the Dean of the faculty and the Chair of the department in which the course is offered unless the calendar course entry states that the course may be repeated for additional credit.

VI. Course Resources and Material

VI.1. Textbook and Lecture slides:

- **Textbook**: 'Biology' by Campbell, 4th or 3rd Canadian edition (optional, but recommended)

You can purchase the eText for Campbell with AI Tutor & Translation Tool from the UVic Bookstore:

https://www.uvicbookstore.ca/text/book/9780135403822.

more info about accessing the textbook can be found on Brightspace -> content -> Introduction -> Textbook information

- **Lecture slides** will be posted on the course website Brightspace. It is recommended that you bring the lecture notes to classes to add comments on slides and answer questions.

- **Lecture recordings** (availability depending on instructor): Lectures may be recorded with Echo360 (video files) and/or voice (audio files) at the instructor's discretion. However, keep in mind that this is a face-to-face class and the focus for the instructors are the students in the classroom. The recordings should be treated as backup in case students missed an occasional class due to sickness or if students need to revisit a concept that was discussed in class. Recordings are **not a long-term solution to skip** classes. We do not guarantee recordings to be posted.

The course materials we provide (including lecture slides, recordings, and exams) are made available for instructional purpose ONLY and are not allowed to be distributed without permission. The material is protected under copyright law, even if not marked with a ©. Any further use or distribution of materials to others through online note-sharing violates the Policy on Academic Integrity.

VI.2. Laboratory manual

In Biol186, we will use the online platform Labflow instead of hard-copy lab manuals. The Labflow platform will hold pdf versions of each lab manual section, plus fillable fields for completing lab assignments. Labflow can be accessed through most devices (phone, tablet, and laptop), although we would recommend against using a phone (the screen is a bit too small to read pdf files). Laptops will be provided for those students who do not bring their own. Labflow access can be paid for through Brightspace- \$58 for access throughout the semester. Labflow is free for the first two weeks, so that if you drop the course before January 19th, you will not be charged for Labflow access.

VII. Evaluation:

VII.1. The lecture component is worth 60%.

Lecture component 60% (details below)

- six mini quizzes 10%

- one midterm exam 20%
- one final exam 30%

- **Six Mini Quizzes** (formative assessments): each worth 2% for a total of **10%** (We will only count FIVE mini quizzes, so you can miss ONE without any reduction) on Thursdays every second week (**Jan 16th**, **Jan 30th**, **Feb 13th**, **March 6th**, **March 20th**, **April 3rd**). Mini quizzes will be written **during class time** on Brightspace on your personal electronic device. There is NO deferred option for mini quizzes.

- Lecture Midterm exam (summative assessment): 20% written on Monday Feb
 24th. The midterm will be written during class time on Brightspace (invigilated).
 The exam will be designed for 50 min and everybody gets 1.5x more time (Universal)

design). You will be allowed to bring ONE hand-written 'study sheet' to the mid-term exam.

If you miss the midterm exam for a valid reason (illness, accident, family crisis or athletic competition representing UVic, see <u>https://www.uvic.ca/students/</u> <u>academics/academic-concessions-accommodations/request-for-academic-concession/index.php</u>), the missing 20 % will be added to the remaining lecture component. You are not required to provide a medical note or other documentation.

Final exam: **30%**, cumulative, and invigilated during final exam period in April 2025. **You will be allowed to bring ONE hand-written 'study sheet' to the final exam**

The midterm and the final exam will both be invigilated and everybody gets 1.5x time (universal design).

The Registrar's office will arrange the specific day and time. The exam might be anytime between April 7th and 25th. The final exam schedule will be posted in February 2025. Travel plans are not a valid reason for missing the final exam.

If you miss the final exam for a valid reason (see above), you must fill out a Request for Academic Concession (RAC) form. A **deferred final exam** will be written on **Tuesday April 29th at 10 am - 1 pm** in a room to be announced later.

VII. 2. The Laboratory component is worth 40%

Exercise/Assessment	Value
Integrity In Practice: Academic Integrity 101	0.5%
Integrity In Practice: Contract cheating	0.5%
Pre-lab Quizzes	9%
Lab Assignments	30%

Both Integrity in Practice modules are course requirements. You must take these courses on Brightspace and upload your certificates to Labflow before 5pm, January 31st. 2025. Instructions for uploading these certificates will be posted on Brightspace.

Pre-lab quizzes will be available online through Labflow for one week prior to the start of your lab section – please ensure that you complete these before coming to lab.

Lab assignments are usually due before the end of lab. Exceptions include Lab 1 assignment (due by 5pm Friday January 17th). Any other exceptions will be posted on Brightspace.

If a student does not complete a laboratory, they will receive a grade of zero for that lab quiz and assignment. Grade concessions will not be applied for absences. Instead, at the end of the term, the lowest two lab scores will be dropped from everyone's laboratory grade.

VII. 3. Grade conversion:

A+ 90-100%; A 85-89.5%; A- 80-84.5%; B+ 77-79.5%; B 73-76.5%; B- 70-72.5%;

C+ 65-69.5%; C 60-64.5%; D 50-59.5%; F <49.5%

In determining final grades for the course, we will round your course score to the nearest whole percent. That is the official course grade that will be submitted for you.

We cannot change your grade for any reason, except if we have made an error calculating it. There is no extra work that you can do to raise your grade.

VII. 5. Universal design for learning (UDL) and 'How to be successful'

Success is when you are happy, and you learn. It is better to be active in the learning activities (mini quizzes and class discussions) than not participating at all and tuning out. Making mistakes is not failure but a good way to learn!

We designed this class with the UDL in mind by

- clearly outlining the intended learning outcomes (ILO),

- **engaging students actively** during class time with mini quizzes and interactive lectures

- always having at least one form of **class material accessible** to all students (prelecture lecture slides, potential post-lecture recordings)

- evaluate students with a mixture of frequent low stakes **formative assessments** (mini quizzes) and a few higher stakes **summative assessments** (midterm exam, final exam)

- giving everyone 1.5x more time for the summative assessments (midterm and final lecture exam)

Please be mindful of your peers and instructors. Please treat people around you with respect and courtesy, focus on active **listening and taking (handwritten) notes**. Please avoid distracting behaviour like eating, watching sports games, online shopping or texting during lecture time. **Off – task activities** like checking email, text messaging, checking social network sites, is known to **negatively affect students' grades by more than 10% (Sana et al. 2013, Computers and education 62, 24-31).** Therefore: turn off your background apps/programs and disable notifications during class time and study time so you can focus and without being distracted!

VII. 6. Stay healthy!

Take care of yourself! Do your best to maintain a healthy lifestyle this semester by eating well, exercising, getting enough sleep, and taking some time to relax. Human societies have respected one day of rest in a 7-day week over hundreds of years. Taking one day off per week seems essential for your mental health and overall well-being.

Avoid last minute study panic by working regularly throughout the term: we recommend that you spend at **least 1-2 hours studying after each lecture**! This will help you achieve your goals and cope with stress.

If you are not feeling well, stay at home. If you miss class, you will be able to catch up by watching the video recording of live classes on Brightspace.

If we as instructors have to stay home, we will deliver course content through prerecorded lectures.

VIII. Course Policies

VIII. 1. To pass the course, students must:

- 1) Write the **final** lecture exam
- 2) Meet the minimum **lab** attendance requirement (students cannot miss, for any reason, more than TWO laboratories see details below)
- 3) Score a grade of **50%** or greater, in the **Lecture** component.
- Score a grade of 50% or greater, in the Laboratory component (see details below)

If any of 1 through 2 are not completed, the student will automatically fail the course and receive an "N" ('Incomplete course requirements') on their transcript. An N is a failing grade, and it factors into a student's GPA as O. The maximum percentage that can accompany an N on a student's transcript is 49. If a student successfully completes 1 through 2, but is not successful in either 3 or 4, they will receive an "F" on their transcript.

VIII.2. Exam policies

- For **all online examinations** (quizzes, exams): Students are expected to bring their own mobile devices to write the exam. If you have no mobile device, you can borrow devices from the library. If you need further help, please contact the course coordinator (BE) at the beginning of term and we will find a solution for you.

-Students are expected to **observe UVic academic regulations and standards of scholarly integrity** especially with regards to plagiarism and cheating. When writing online exams students are prohibited from sharing any information about the exam with others or from capturing or recording (screen shots) exam questions. **Students are not allowed to use any online resources including artificial intelligence (AI) tools during the exam. Cell phones must be turned off to allow full wifi capacity in the class room.**

- For summative assessments (midterm and final exam) students must **present exam submission** to the instructor before leaving the room.

VIII. 3. Laboratory policies

3.1 Laboratory attendance and material

- Registration and attendance in a laboratory section is required. You must come to the first lab to hold your place in the course.
- Students on waitlists must register themselves in an available lab section on or before the last day to add courses (January 22nd)
- Completing lab material is a mandatory component of Biol186 and failure to do so will result in an N grade, i.e. "Did not write examination or complete course requirements by the end of term or session; no supplemental" – from <u>Undergraduate Calendar</u>.

Students who have completed the following elements will be considered to have completed the lab course:

Element a – Complete and on-time submission of all pre-lab quizzes for eight out of ten labs (Note: some labs contain more than one quiz).

Element b – Complete all lab activities associated with eight out of ten labs.

Element c – Complete and on-time submission of all assignments associated with eight out of ten labs (Note: some labs contain more than one assignment).

Failure to complete one or more of these required elements will result in a grade of "N" regardless of the cumulative percentage on other elements of the course.

3.2 Late submission penalties

Laboratory assignments submitted after the deadline will not be accepted and given a grade of zero. Pre-lab quizzes will close at the start time of your lab section, thus late submission of pre-lab quizzes is not possible and non-submission will result in a grade of zero.

3.3 Course work queries and challenges

Queries and challenges pertaining assignments and exams will only be considered for one week after receiving the marked assessment.

For more lab-related regulations, please see the "Introduction to the Laboratory" document on Labflow.

IX. Important Dates

In the <u>UVic calendar</u> you will find a complete list of important dates, but the ones we have listed below are the ones that will matter to students in Physiology and Cell Biology.

Monday Jan 6 th :	First lecture at 10 am
Sunday Jan 19 st :	Last day for 100% reduction of second term fees
Thursday Jan 16 th :	Mini quiz 1

Jan 13 th - 16 th :	Lab 1 – online only
$\int an 20^{th} - 23^{rd}$:	Lab 2 – in-person
Wednesday Jan 22 nd :	Last day for adding courses that begin in second term,
Jan $27^{\text{th}} - 30^{\text{th}}$:	Lab 3 – in-person
Friday Jan 31 st	Last Day for paying second term fees without penalty
Thursday Jan 30 th :	Mini quiz 2
Feb 3^{rd} – 6^{th} :	Lab 4 – online only
Sunday Feb 9 th :	Last day for 50% reduction of tuition fees
Feb 10 th – 13 th :	Lab 5 – in-person
Thursday Feb 13 th :	Mini quiz 3
Monday Feb 17th- Friday I	Feb 21 st - Reading break, no classes, no laboratories!
Feb 24 th – 27 th :	Lab 6 – in-person
Monday Feb 24 th :	Midterm (lecture)
Thursday Feb 28 th :	Last day for dropping courses without penalty of failure
Mar 3^{rd} – 6^{th} :	Lab 7 – in-person
Thursday Mar 6 th :	Mini quiz 4
Mar 10 th – 13 th :	Lab 8 – in-person
Mar 17 th – 20 th :	Lab 9 – in-person
Thursday Mar 20 th :	Mini quiz 5
Mar 24 th – 27 th :	Lab 10 – in-person
Thursday Apr 3 rd :	Mini quiz 6
Friday April 4 th :	Last day of classes

Thursday April 7th- Friday April 25th: Examinations period

X. General UVic regulations and resources:

Please read the appropriate section of the current UVic Academic Calendar regarding your rights and obligations.

<u>https://www.uvic.ca/calendar/future/undergrad/index.php#/policies?expanded=</u> <u>Undergraduate%20Academic%20Regulations</u>

It is your responsibility to be aware of ADD/DROP dates published in the Calendar. If you intend to drop this course, please do so officially and give up a space for students who might be on a waitlist.

You are expected to **observe UVic academic regulations and standards of scholarly integrity** especially with regards to plagiarism and cheating. Please check out this link: https://www.uvic.ca/library/help/citation/plagiarism/

UVic and we as instructors are committed to promoting, providing and protecting a supportive and safe learning and working environment for you and us.

Resources at UVic to maintain a healthy student life:

- If you have any **technical issues** using Brightspace, please contact the **computer help desk** via email (helpdesk@uvic.ca)

- **Support Connect**: offers short term solution focused counselling, available 24/7 help by phone or online. Supported by counsellors, consultants and life coaches.

https://www.uvic.ca/student-wellness/wellnessresources/supportconnect/index.php

- **Student Wellness Centre** to support students' mental, physical and spiritual health by a team of counsellors, nurses, physicians, spiritual care providers.

https://www.uvic.ca/student-wellness/index.php

- **Centre for Accessible Learning** (CAL): promote educational accessibility for students with disabilities and chronic health conditions. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

https://www.uvic.ca/accessible-learning/index.php

- Office of Indigenous Academic and Community Engagement (IACE) has the privilege of assembling a group of Elders from local communities to guide students, staff, faculty and administration in Indigenous ways of knowing and being. Supporting Indigenous students.

https://www.uvic.ca/services/indigenous/

- **Office of Student life:** student conduct, first year experience, Student mental health, Sexualized violence awareness,...: <u>https://www.uvic.ca/services/studentlife/index.php</u>

- **Student support services**: the office of registrar helps with academic concession, fee reduction appeals, room bookings,... <u>https://www.uvic.ca/registrar/students/index.php</u>

- **Sexualized Violence Prevention and support**: how to start conversations about consent, support on and off campus

https://www.uvic.ca/sexualizedviolence/

- UVic Bounce: Stories about resilience and how we stand up again after falling.

https://uvicbounce.ca/

We hope you will enjoy a great term with Physiology and Cell Biology! End of Biol186 course outline