

**Physiology and Cell Biology, Biol186,
University of Victoria, BC
Course Outline, Winter term 2024**

Welcome to Biol186!

We acknowledge and respect the lək̓ʷəŋən peoples on whose traditional territory the University of Victoria stands, and the Songhees, Esquimalt and W̱SÁNEĆ 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, Physiology and Cell Biology)
email: behlting@uvic.ca, office Petch 005

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. Gregory Beaulieu* (cell biology)

Email: gregoryb@uvic.ca, office hours Wednesdays 2:30-4:00PM in Petch 006

- *Dr. Jürgen Ehlting* (plant physiology)

Office hour by appointment, please email me: je@uvic.ca

- *Dr. Gautam Awatramani* (animal physiology)

Email: gautam@uvic.ca

- *Kim Curry* (Transcription and Translation)

Email: kimh@uvic.ca, office hours by appointment, please email me

- *Alicia Rippington* (Senior Lab Instructor)

Email: biologylabs@uvic.ca

A. Rippington is the senior lab coordinator, so if you have any lab related issue, which is not addressed in the laboratory manual, please to contact AR.

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 lab manual) 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.

- Please 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 'Meet your instructor'!

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

1. Goals for this course:

We are a team of dedicated science instructors who love biology. 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 water transport in plants and the nervous system in animals. Whenever possible we will connect the basic principles with our daily lives.

We hope you enjoy 'Physiology and Cell Biology', which 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.

2. At the end of this course, you will know...

- the basic molecules of life: lipids, proteins, carbohydrates, DNA,...
- the all the basic components of cells and their functions
- fundamental cellular processes, e.g. transport across membranes, functions of enzymes, osmosis, cellular respiration...
- basic plant structure and basic plant physiology, e.g. water transport and photosynthesis
- basic animal structures and basic animal physiology, e.g. thermoregulation and nervous systems
- the essentials of gene transcription and translation
- important laboratory safety practices and procedures
- proper use of standard laboratory equipment and techniques such as pipettes, microscopy, spectrophotometry
- how to collect, analyze and present your own experimental data
- the scientific method and how to think critically about experimental design

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 labs, and being proactive, aiming for problem solving rather than complaining
- be respectful and collegial with peers and instructors

III. 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 FRA 159
- Classes start Jan 8th and end April 8th 2024.

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.

IV. Lecture and Laboratory Schedule

1. Tentative Class Schedule

- Welcoming, Introduction to the class
- *Gregory Beaulieu/Barbara Ehlting*
- Molecules of life chapter 2, 3, 4, 5
- Cells and their components chapter 6
- Membranes and transport chapter 7
- Bioenergetics and enzymes chapter 8
- Respiration chapter 9

- *Jürgen Ehlting*
- Plant structure and growth chapter 35
- Plant transport systems chapter 36
- Photosynthesis chapter 10
- Plant control systems chapter 39

- *Gautam Awatramani*
- Animal physiology chapter TBA
- Thermoregulation and osmoregulation chapter TBA
- circulation and gas exchange chapter TBA
- Neurons and nervous systems chapter TBA
- sensory and motor mechanisms chapter TBA

- *Kim Curry*
- DNA replication and gene expression chapter 17 & 18

2. Laboratory Schedule

Date		Lab Exercise
Jan. 22 – 25	1	Introduction and the scientific method
Jan. 29 – Feb. 1	2	Microscopy
Feb. 5 – 8	3	Cell structure and function
Feb. 12 – 15	4	Enzyme activity
Feb. 19 – 22		Reading break – No labs, no TA office hours
Mon. Feb. 26		Midterm lab exam (covers labs 1, 2, 3, and 4)

Feb. 26 – 29	5	Plant structure and function
Fri. Mar. 1		Deferred midterm lab exam, 2:00 – 3:20 PM
Mar. 4 – 7	6	Chlorophyll and photosynthesis
Mar. 11 – 14	7	Osmoregulation
Mar. 18 – 21	8	Cardiovascular physiology
Mar. 25 – 28	9	Human sensory physiology
Apr. 1 – 4		No labs
Apr. 11 – 26		Final lab exam (cumulative) Date to be announced when the final exam schedule is released.

V. 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 that you take Biology 186 later, this May-June if possible, after you have studied some chemistry. Or you can read chapters 2 and 3 in the textbook

VI. Course Resources and Material

1. Textbook and Lecture slides:

- 'Biology' by Campbell, 3rd Canadian edition (optional)
- Lecture notes 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.
- Lectures will be recorded with Echo360 (video files) and/or voice (audio files).

Provided course material (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.

2. Laboratory manual

Students are required to bring their own copy of the laboratory manual to each lab period. Students are expected to come prepared to each laboratory having read everything in the manual for that week.

Laboratory manuals will be available for purchase at the UVic bookstore.

VII. Evaluation:

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 18th, Feb 1st, Feb 15th, March 7th, March 21st, April 4th**) on Brightspace. It is your responsibility to complete those participation quizzes within 24 hours. There is NO deferred option for mini quizzes.

- **Lecture Midterm exam** (summative assessment): **20%** during class time on **Monday Feb 26th** written online (on Brightspace) and timed during class time. The exam will have multiple choice and multi select questions from the **lecture** and **laboratory content**.

If you miss the midterm exam for a valid reason (illness, accident, family crisis or athletic competition representing UVic), it is your responsibility to inform the course coordinator (BE) as soon as possible to be permitted to write the deferred midterm exam. You are not required to provide a medical note or other documentation if you are sick. The **deferred midterm** is scheduled for **Friday March 1st 2 pm – 3.20 pm** on Brightspace.

Students must write either the midterm or the deferred midterm to successfully complete this course. Not writing the either the midterm or the deferred midterm will result in an N. Remember that N is a failing grade and factors into GPA as a value of zero.

- **Final exam: 30%**, cumulative, on **paper (!)** in person, timed during final exam period in April 2024. The exam will have multiple choice and multi select questions from the **lecture** and **laboratory content**.

The Registrar's office will arrange the specific day and time. The exam might be anytime between April 11th and 26th. The final exam schedule will be posted in February 2024. 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 Monday May 6th 10 am - 1 pm in a room to be announced later.

2. The Laboratory component is worth 40%

Exercise/Assessment	Value
Integrity Matters (course completion and certificate upload)	1% (course requirement)
Lab Quizzes	5%
Lab Checkmarks	4%
Lab Assignments	5%
Midterm Lab Exam	10%
Final Lab Exam (cumulative)	15% (course requirement)

The midterm and final laboratory exams will be written at the same time as the lecture exams.

If a student misses a laboratory, they will receive a grade of zero for that lab quiz and checkmark. Grade concessions will not be applied for absences. Instead, at the end of the term, the lowest two lab quiz scores and the lowest checkmark score will be dropped from everyone's laboratory grade. **If you miss more than two laboratories, for any reason, you cannot pass the course and will receive a grade of N (incomplete).**

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.

4. To pass the course, students must:

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

→ If any of 1 through 3 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 0. The maximum percentage that can accompany an N on a student’s transcript is 49. If a student successfully completes 1 through 3, but is not successful in either 4 or 5, they will receive an “F” on their transcript.

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
- having all **class material accessible** to all students at all times (pre-lecture lecture slides, 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)

UVic is a professional environment. 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 three-course meals, watching sports games, online shopping or texting during lecture time. **Off – task activities** like checking email, text messaging, checking social network sites, is **negatively affecting students' grades by more than 10% (Sana et al. 2013, Computers and education 62, 24-31)**. Therefore: **turn off your off – task apps/programs and disable notifications during class time and study time so you can focus and without being distracted!**

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 instructor have to stay home, we will deliver course content through pre-recorded lectures.

VIII. Course Policies

1. Exam policies

- For **all online examinations** (quizzes, midterm): 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 the online midterm exam 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.**

2. Laboratory policies

2.1 Laboratory attendance

- Registration and attendance in a laboratory section is required. You must come to the first lab to hold your place in the course.
- If you miss a lab it is not possible to make it up.
- If you miss more than two labs, for any reason;
 - you cannot pass the lab and will get an a grade of N (incomplete)
 - you will not be allowed to write the final exam in April

2.2 Late submission penalties

Laboratory assignments submitted after the deadline will not be accepted and given a grade of zero. Lab assignment due dates will be provided in the first laboratory period.

2.3 Course work queries and challenges

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

IX. Important Dates

In the UVic calendar you will find a fuller 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 8th: **First lecture** at 10 am

Sunday Jan 21st: Last day for 100% reduction of second term fees

Thursday Jan 18th: Mini quiz 1
Monday Jan 22nd: Laboratories begin
Wednesday Jan 31st: Last day for adding courses that begin in second term,
Last Day for paying second term fees without penalty
Thursday Feb 1st: Mini quiz 2
Sunday Feb 11th: Last day for 50% reduction of tuition fees
Thursday Feb 15th: Mini quiz 3
Monday Feb 19th- Friday Feb 23rd: **Reading break, no classes, no laboratories!**
Monday Feb 26th: Midterm (lecture and laboratory)
Thursday Feb 29th: Last day for dropping courses without penalty of failure
Friday March 1st: **Deferred midterm**
Thursday March 7th: Mini quiz 4
Thursday March 21st: Mini quiz 5
Friday March 29th: **UVic closed, no lecture (Good Friday)**
Monday April 1st: **UVic closed, no lecture (Easter Monday)**
Thursday April 4th: Mini quiz 6
Monday April 8th: Last day of classes
Thursday April 11th- Friday April 26th: Examinations period

X. General UVic regulations and resources:

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

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

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/wellness-resources/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,...

<https://www.uvic.ca/services/studentlife/index.php>

- **Student support services**: the office of registrar helps with academic concession, fee reduction appeals, room bookings,...

<https://www.uvic.ca/registrar/students/index.php>

- **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