

BIOLOGY 186 – Physiology and Cell Biology

Department of Biology, University of Victoria

Spring 2023

A. Basic Course Information

Course description

This course, the companion course to Biology 184, focusses on functional aspects of organisms. Biochemistry, cellular components, membrane structure and function, energy transduction, DNA replication and gene expression. Insight into plant structure and response mechanisms of these light-eating organisms. Principles of animal physiology including homeostatic mechanisms, circulation, gas exchange, osmoregulation, thermoregulation, defense systems, chemical signaling, reproduction and development.

Lecture meetings

A01 (CRN 20314) – Monday and Thursday, 10:00 – 11:20 AM, Bob Wright B150

A02 (CRN 20315) – Monday and Thursday, 1:00 – 2:20 PM, Bob Wright B150

A03 (CRN 20316) – Monday and Thursday, 3:30 – 4:50 PM, Bob Wright B150

Course Coordinators

- Dr. Greg Beaulieu (course and lecture coordinator)
Petch 006, phone 250-721-7140
Email: gregoryb@uvic.ca. If you send an email, please put “Biology 186” in the message line.
Office hours: Thursday, 1:00 – 2:00 PM.

Dr. Beaulieu will not be lecturing, but will serve as the course coordinator. If you have some business-related issue, such as exam absence, he is the person to contact.

If you have a question concerning the labs, however, you should contact Alicia Rippington (see below).

If you have questions concerning the material covered in class, you should contact the relevant lecturer.

- Alicia Rippington (Senior Lab Instructor; lab coordinator)
email: biologylabs@uvic.ca (for questions related to lab content).
If you send an email, please put “Biology 186” and your lab section number (*e.g.* B03) in the message line.
Office hours: Tuesdays 1:00 – 2:00 PM

Lecturers

- Dr. Rossi Marx
Petch 105, phone 250-721-7089, email: zoology@uvic.ca.
If you send an email, please put “Biology 186” in the message line.
Office hours: Study session and by appointment.

- Dr. Peter Constabel
Cunningham 147a, phone 250-472-5140, email: cpc@uvic.ca.
If you send an email, please put “Biology 186” in the message line.
Office hours: Tues, 12 – 1 pm

Prerequisite

Any one of: Biology 11, Biology 12, Biology 150A, Biology 150B, Biology 184, or equivalent, or placement exam. You do not need to have passed Biology 184 in order to take Biology 186.

Chemistry

Although a course in chemistry is not a prerequisite for Biology 186, such a chemistry course at the high school, college or university level is **strongly recommended**.

If your chemistry is shaky, we recommend you do one of the following:

- Read Chapters 2 and 3 of the text as your first priority in this course. These chapters cover in summary form the basic chemistry that an intro biology student should know. The concepts in these chapters will be touched on only briefly during lecture at the beginning of the Biomolecules section of the course. The rest of that section, and the rest of the course, will assume that you are on top of this basic stuff.
- Defer taking Biology 186 until after you have studied some chemistry in a basic chemistry course.

Required text

Campbell Biology, third Canadian edition, by Urry *et al.* 2021. Available through the bookstore. You can purchase either a hardcopy or e-text version. This is the same text as was used in Biology 184 in the fall. There might be some cheaper used copies in SubText.

If you have access to the previous edition of the text (second Canadian edition), that will be alright for you to use, but bear in mind that some of the pagination, figure numbers and problem numbers might be different.

New copies of the text come with access to the publisher’s website, which has Mastering Biology. Mastering can be useful, **but we do not require it in this course and we will not reference it in class**, so a used text will do fine. A couple of notes:

- If you bought your text new in the fall, your access to Mastering Biology will still be good.
- If you decide to go with a used copy, but you wish to purchase website access separately from the publisher, you may do so. There is a pdf on Brightspace giving you directions on how to register with the publisher (if you are not already registered), how to purchase access if you bought a used text, and how to access Mastering. See “Course Business” > “Student Registration Information, Pearson Website”. But note again that we are not requiring access in this course.

Brightspace website

Biology 186 has a Brightspace website. As a registered student in this course, you will automatically be enrolled in this site. The course should be on your list of Brightspace sites to which you have access.

On the site you will find lecture and lab notices, test results, practice questions, exam information, links and lecture notes. Please check the site before each class and lab.

Class Conduct

We ask you to be mindful of where you are, and to treat the people around you with respect and courtesy. Talking in class, texting and surfing are all irksome to students sitting nearby and to the instructor. Please turn your cell phones and all social media sites OFF during class time.

Focusing on the lecture instead of being distracted by the internet will help you to be successful in this course and in all your other courses.

Make friends

It can be helpful if you know someone in the class, because you can arrange to get expanded notes in case you miss a class, and you can lend that person your notes when needed.

Getting to know new people is an important part of your university experience.

B. Labs

Senior Lab Instructor

Alicia Rippington

email: biologylabs@uvic.ca (for questions related to lab content).

If you send an email, please put "Biology 186" in the message line.

Office hours: Tuesday 1:00 – 2:00 PM

Lab schedule and policy

You must enrol in and attend a lab section in this course.

There will be no labs the week of January 9 – 13. Labs will begin the week of January 16 – 20.

Please purchase a lab manual from the bookstore and bring it to your first lab during the week of January 16 – 20. **You must come to your first lab to hold your place in the course**, and you must be registered, not wait-listed, in a lab section by January 25th (the last day to add courses to your timetable) in order to remain in the course.

Students sometimes have challenges and queries pertaining to lab assignments and exams. If you have such an issue, your TA and the senior lab instructor will be happy to discuss it with you, but please raise the issue with them within one week after receiving the marked assignment or exam. We cannot consider appeals after that.

C. Evaluation

Components of your course grade

Your lecture grade will constitute 60% of your course grade. The components are:

- Midterm exam 1 – 15%
- Midterm exam 2 – 15%
- Final Exam – 30%

Your lab grade will make up 40% of your course grade. See the lab manual for the mark breakdown.

Exams

Midterm 1 – Thursday, February 9, 7 – 9 PM.

Midterm 1 will include both a lecture part and a lab part. The lecture part will be multiple choice format. The lab part's format will be announced in lab.

The exam will be written in various rooms around campus. The rooms where students write go by the first letter of last name.

First letter of

<u>last name</u>	<u>Exam room</u>
A – F	Engineering and Computer Science 123
G – J	Human and Social Development A240
K – Q	Mac A144 (David Lam Auditorium)
R – S	David Strong C103
T – Z	Engineering and Computer Science 125

If you have a lecture, lab or tutorial in another course at that time, you should meet that commitment. You will be eligible to write the deferred exam on Saturday, Feb 11 (see below). If you are in this situation, please notify the course coordinator (gregoryb@uvic.ca) and let him know, identifying the course that has the time conflict. **You will not have to provide any documentation of this.**

If you must miss the exam because of illness, accident, personal or family affliction, or participation in an important cultural, community or sporting event, you must notify the course coordinator (gregoryb@uvic.ca) as soon as possible. **You will not be required to provide a medical note or other documentation if your reason is illness.** If you must miss the exam for any non-medical reason, you must provide GB some kind of documentation (if you are an athlete, for example, an email to me from your coach will do). **You will be eligible to write the deferred exam on Saturday.**

Deferred Midterm 1 – Saturday, February 11, 10 AM – 12 noon, Elliot 167. This writing is for students who had to miss the Thursday exam due to other course commitments, some other non-medical issue (see above), or a medical issue if you feel better.

Midterm 2 – Thursday, March 9, 7 – 9 PM.

Midterm 2 will include both a lecture part and a lab part. The lecture part will be multiple choice format. The lab part's format will be announced in lab.

This midterm, like the first one, will be written in various rooms around campus. The rooms where students write go by the first letter of last name.

First letter of

last name Exam room

A – F Engineering and Computer Science 123

G – J Human and Social Development A240

K – Q Mac A144 (David Lam Auditorium)

R – S David Strong C103

T – Z Engineering and Computer Science 125

If you have a lecture, lab or tutorial in another course at that time, you should meet that commitment. You will be eligible to write the deferred exam on Saturday, March 11 (see below). If you are in this situation, please notify the course coordinator (gregoryb@uvic.ca) and let him know, identifying the course that has the time conflict. **You will not have to provide any documentation of this.**

If you must miss the exam because of illness, accident, personal or family affliction, or participation in an important cultural, community or sporting event, you must notify the course coordinator (gregoryb@uvic.ca) as soon as possible. **You will not be required to provide a medical note or other documentation if your reason is illness.** You must provide some kind of documentation (such as an email to GB from your coach, if you are an athlete). **You will be eligible to write the deferred exam on Saturday.**

Deferred Midterm 2 – Saturday, March 11, 10 AM – 12 noon, Elliot 167. This writing is for students who had to miss the Thursday exam due to other course commitments, some other non-medical issue (see above), or a medical issue if you feel better.

Final exam – April final exam period; McKinnon Gym

The final exam will be written during the final exam period (Tuesday, April 11 – Wednesday, April 26). The specific day and time will be arranged by the Registrar's office.

Because the final exam period ends for all faculties on Wednesday, April 26, the university's last exam will be in the evening of that day. Your last exam might be on this date, or it might be sooner – you will know for sure only when the final exam schedule is drawn up and posted in February.

Travel plans are not a valid reason for missing the final exam. You can safely make travel plans for Thursday, April 27 or later, but don't make any plans to travel before this date until after the schedule has been posted and you know when you will be finished all your exams.

The final exam can be missed and deferred for the same reasons listed above for missing a midterm (illness, accident, personal or family affliction, participation in an important cultural, community or sporting event).

- If you expect to miss the final exam in April, please notify the course coordinator (gregoryb@uvic.ca) as soon as possible, either by phone, email or in person.
- To make your deferred status official in the eyes of the university, you must fill out a Request for Academic Concession (RAC) form, available from Undergraduate Admissions and Records in the University Center or online. The link below gives information on types of concessions and accommodations available to UVic students. For a link to the RAC form, scroll down to where it says “Able to complete the coursework . . .” and click on “After the end of term”.
<https://www.uvic.ca/registrar/students/appeals/acad-concession/index.php>
- A writing of the deferred final exam will be offered to you on Friday, May 5, 2023, 10:00 AM – 1:00 PM, in a room to be announced later. If you cannot make this date and time, your deferred final exam will be written in the last three days of July, at a time determined by the Exams office. They will notify you of the details.

Grading Policy

At the University of Victoria, grades are submitted by instructors as percentages. These will be converted to letter grades by the Registrar's office according to this grading scale:

A+	90 – 100%	B+	77 – 79%	C+	65 – 69%
A	85 – 89%	B	73 – 76	C	60 – 64%
A-	80 – 84%	B-	70 – 72%	D	50 – 59%

The only circumstances under which we change a submitted course grade is if we have made a calculation error, or if a student has deferred the final exam, received an N, and then written a deferred final. **Please do not ask us to raise your percent grade in order to qualify you for a higher letter grade.** We turn down all such requests.

You will receive an F in the course in either of these cases:

- you miss two or fewer labs but do not pass the lab (<20/40)
- you pass the lab but have an aggregate course grade (rounded to the nearest whole number) less than 50%

You will receive an N in the course in either of these cases:

- you miss three or more labs; you will not be allowed to make up these labs and you will not be allowed to write the final exam in April
- you miss the final exam in April and do not write a deferred final exam by the date specified on your Request for Academic Concession form.

It is not necessary to pass the lecture exams (midterms and final), either together or individually, to pass the course. It is possible to fail all three lecture exams and still be saved by a good lab mark (not a course strategy we recommend, however).

No supplemental final exam (second-chance final exam) will be given in this course, although, as described above, you may defer the final exam for any of the reasons stated.

D. University Statements and Policies

Cheating and Plagiarism

The University and the Biology Department deal with cheating and plagiarism as a serious matter, since ignoring it could be interpreted as endorsing dishonest practice in one's later professional career. To claim ignorance of the University's policy on academic integrity is, therefore, not excused. Please read the policy carefully to avoid unpleasant misunderstandings. The policy can be found on the online UVic calendar:

<https://web.uvic.ca/calendar2022-01/undergrad/info/regulations/academic-integrity.html>

The University of Victoria Department of Biology reserves the right to use plagiarism detection software or other platforms to assess the integrity of student work.

UVic official territory acknowledgement

"We acknowledge and respect the lək'wəŋən peoples on whose traditional territory the university stands and the Songhees, Esquimalt and WSÁNEĆ peoples whose historical relationships with the land continue to this day."

E. Important Dates

On the UVic website you will find a fuller list of important dates, but the dates we have listed below are the ones that will matter to students in Biology 186 and to students wishing to add the course this term. Course-specific dates are bolded.

Monday, January 9	First day of classes
Sunday, January 22	Last day for 100% reduction of tuition fees for standard courses.
Wednesday, January 25	Last day for adding courses
Thursday, February 9	Midterm 1, 7-9 PM, various rooms (see above)
Saturday, February 11	Deferred Midterm 1, 10 AM - 12:00 noon, Elliot 167
Sunday, February 12	Last day for 50% reduction in tuition fees for standard courses. 100% of tuition fees will be assessed for courses dropped after this date.
Monday, February 20 – Friday, February 24	Reading break; no classes
Tuesday, February 28	Last day for withdrawing from courses without penalty of failure
Thursday, March 9	Midterm 2, 7-9 PM, various rooms (see above)
Saturday, February 11	Deferred Midterm 2, 10 AM - 12:00 noon, Elliot 167
Thursday, April 6	Last day of classes
Tuesday, April 11 – Wednesday, April 26	Final exam period

F. Lecture Topics and Readings

Rossi Marx – Cells and Molecules (Readings and Dates TBA)

Molecules of life

Bioenergetics and enzymes

Cell tour

Membranes and transport

Cellular respiration

Peter Constabel – Plant Structure and Physiology

Plant structure and growth

(Feb 9)

Chapter 35: 35.1-35.4, pp. 808-825 (3rd Can. ed.)

Chapter 35, pp. 802-819 (2nd Can. ed.)

Mineral uptake & transport systems

(Feb 13)

Chapter 36.2-36.5 pp. 837-852 (3rd Can. ed.)

Chapter 36.2-36.5 pp. 824 -839 (2nd Can. ed.)

Photosynthesis & sugars

(Feb 16)

Chapter 10.1-10.3, pp. 199-217 (3rd Can. ed.)

Chapter 10, pp. 196-214 (2nd Can. ed.)

Internal Signals & plant develop't

(Feb 27)

Chapter 39.1-39.2, pp; 895-908 (3rd Can. ed)

Chapter 39.1-39.2, pp. 880-894 (2nd Can. ed.)

External Signals & stress responses

(Mar 2)

Chapter 39.3-39.5, pp. 908-922 (pp. 805-807)(3rd Ca ed.)

Chapter 39.3-39.5, pp. 895-907 (2nd Can. ed.)

Rossi Marx – Animal Physiology (Readings and Dates TBA)

Introduction to animal physiology

Thermo- and osmoregulation

Circulation and gas exchange

Neurons and nervous systems

Sensory and motor mechanisms

Guest lecturer – Molecular Biology (Readings and Dates TBA)

DNA replication and gene expression