

BIOLOGY 186 – Physiology and Cell Biology

Department of Biology, University of Victoria

Summer 2019

Course description

This course, the companion course to Biology 184, focusses on functional aspects of organisms. Biochemistry, cellular diversity, membrane structure and function, energy transduction, DNA replication. 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 31095) – Tuesday, Wednesday, and Friday, 8:30 – 10:20 AM, Engineering and Computer Science 124

Lecture instructors

- Dr. Greg Beaulieu

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: Tuesday, 10:30 AM – 12:00 noon, or by appointment, or drop by.

- Kim Curry (special lecture)

email: cellbiol@uvic.ca. If you send an email, please put “Biology 186” in the message line.

Office hours by appointment.

Lab coordinator

Dr. Rossi Marx (Senior Lab Instructor)

email: biologylabs@uvic.ca; phone 250-721-8713

Contact people for questions

If you have any questions about the lecture material, or business issues such as absence notes for the midterm exam or the final exam, you should contact the course coordinator, Greg.

If you have a question about the lab material, you should ask your TA.

If you miss a lab or a lab exam, you will need to justify your absence to the Senior Lab Instructor, Rossi.

Prerequisite

Any one of: Biology 11, Biology 12, Biology 150A, Biology 150B, Biology 184, or placement exam. **A course in chemistry at either the high school or university level is strongly recommended.**

You do not need to have passed Biology 184 in order to take Biology 186, unless Biology 184 is the only other biology course you have taken.

Required text

Campbell Biology, second Canadian edition, by Reece, Urry, Cain, Wasserman, Minorsky and Jackson. Available in the bookstore as either a hard copy book, loose-leaf format, or etext. This is the same book that is used in Biology 184.

A used copy of the text is acceptable (Bookstore, SubText). We will **not** require you to use the text website maintained by the publisher (etext + Mastering Biology), so if you buy a used copy, you do not have to buy access to the website from the publisher.

You may use the etext of *Campbell* instead of the hard copy. The bookstore can give you details.

Labs

Labs begin on Monday, May 13, the day before the first lecture. Please purchase a lab manual from the bookstore and bring it to the first lab. **You must come to your first lab to hold your place 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.

Concerning your writing on lab exams and in lab assignments: good grammar and correct spelling are important. You could be marked down if your work is not up to the expected standard.

Course website

Biology 186 has a CourseSpaces website. There 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

Most people come to class with a laptop and a cell phone. **Under no circumstances should you use either device for non-course business during class.** Do not text or shop during class time. Do not surf or play games during class time. Do not share a YouTube post or a news story or a totally badass cat video with the person beside you. Studies have shown that such behaviour lowers your grade in the class, *and lowers the grades of people sitting around you.*

We also would like to remind students that talking in class about non-course subjects is equally irksome, both to the students sitting nearby and to the instructor. We ask that you be mindful of this and treat the people around you with respect and courtesy. Remember where you are. If you have a potentially disruptive friend in the course, you might consider not sitting beside them in class.

Your continued presence in this course, after the first day of class, means that you have read and understood these rules, and have agreed to abide by them. You risk expulsion from class if you do not.

Evaluation

Midterm exam (Tuesday, June 4)	20%
Final exam (Friday, June 28; cumulative)	40%
<u>Lab</u>	<u>40%</u>
Total	100%

You must pass the lab in order to pass the course. We will determine if you passed the lab by rounding your lab grade out of 40 to the nearest whole number; 20/40 is the pass line. So 19.51 would round up to 20, and you would pass, but 19.49 would round down to 19, and you would not pass. If you fail the lab, your course grade will be an F.

Biology 186 has ten lab sessions. If you miss three or more of these, you will receive a course grade of F, even if you have a medical excuse or other excuse for the missed sessions.

Both the academic integrity assignment and the formal lab report are course requirements. If you do not do the academic integrity assignment, or you do not submit a formal report, you will receive a course grade of F, regardless how you did on the other course components.

You will get an N grade if you do not write the final exam in June. If you miss the final exam and you do have a valid excuse, you will be eligible to write a deferred exam later, and your grade will change from an N to whatever your final calculated course percent turns out to be. See the section “Deferred final exam” below.

It is not necessary to pass the lecture exams, either together or individually, to pass the course. It is possible to fail the lecture exams and still be saved by a good lab mark.

Deferred final exam

The final exam can be deferred in cases of illness, accident, family affliction, or commitments as a UVic athlete. If you expect to miss the final exam for any of these reasons, please notify the course coordinator (Dr. Beaulieu, gregoryb@uvic.ca) as soon as possible, either by phone, email or in person. You must also fill out a Request for Academic Concession (RAC) form, available from Undergraduate Admissions and Records in the University Center or online (<http://www.uvic.ca/registrar/assets/docs/record-forms/rac.pdf>).

Travel plans are not a valid reason for missing the midterm exam or the final exam.

Exam policy

No electronic devices will be permitted during the midterm exam or the final exam.

During the exams, *the invigilator cannot answer any clarification questions*. However, if you believe a question is bad, please bring your concerns to the attention of the invigilator at the front when you turn in your exam.

Please bring your UVic One Card or other photo ID to both the midterm and the final exam.

Grading

At the University of Victoria, grades are submitted by instructors as percentages. These will be converted to letter grades by the registrar, according to the grading scale given in the university calendar.

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.

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 given.

Lecture topics

These topics and readings are tentative; some of them might change or might not be covered.

Molecules of life	Chapter 2 (I recommend that you read this if you don't know basic chemistry; I won't be covering most of this material in class or in these lecture notes, but you have to know it to understand this course); Chapter 3 (Same advice as for Chapter 2); Chapter 4; Chapter 5
Bioenergetics and enzymes	Chapter 8
Cell tour	Chapter 6
Membranes and transport	Chapter 7
Respiration	Chapter 9, pp. 175-193
Plant structure and growth	Chapter 35, pp. 802-819
Photosynthesis	Chapter 10, pp. 198-213
Plant transport	Chapter 36
Plant control systems	Chapter 39, pp. 888-907
Introduction to animal physiology	Chapter 40, pp. 920-940
Thermoregulation & osmoregulation	Chapter 44, pp. 1025-1030
Circulation and gas exchange	Chapter 42, pp. 966-996
Neurons and nervous systems	Chapter 48, pp. 1120-1135
Sensory and motor mechanisms	Chapter 49, pp. 1139-1143; Chapter 50, pp. 1162-1170, 1180-1189

Kim Curry – Molecular Biology

DNA replication & gene expression Chapter 16; Chapter 17 (specific pages TBA)