

# **BIOLOGY 186 – Physiology and Cell Biology**

## **Department of Biology, University of Victoria**

### **Spring 2016**

#### **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 – Monday and Thursday, 10:00 – 11:20 AM, Bob Wright B150

A02 – Monday and Thursday, 1:00 – 2:20 PM, Bob Wright B150

#### **Course coordinator**

Dr. Greg Beaulieu, Petch 006, phone 250-721-7140, email [gregoryb@uvic.ca](mailto:gregoryb@uvic.ca). If you send an email, please put “Biology 186” in the message line.

Office hours Wednesday, 1:30 – 3:30, or by appointment, or drop by.

#### **Lecture instructors**

- Dr. Rossi Marx, email [zoology@uvic.ca](mailto:zoology@uvic.ca). Office hours TBA
- Dr. Barbara Ehling, office 005 Petch, phone 250-472-4066, email [behling@uvic.ca](mailto:behling@uvic.ca). Office hours TBA.
- Kim Curry, email [cellbiol@uvic.ca](mailto:cellbiol@uvic.ca), Office hours by appointment.

#### **Lab coordinator**

Alicia Rippington, Senior Lab Instructor, Cunningham 010, phone 250-721-8713, email [genbiol@uvic.ca](mailto:genbiol@uvic.ca).

#### **Prerequisite**

Any one of: Biology 11, Biology 12, Biology 150A, Biology 150B, Biology 186, 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.

#### **Required text**

*Campbell Biology*, special UVic custom edition (a modification of the first Canadian edition), by Reece, Urry, Cain, Wasserman, Minorsky and Jackson. Available in the bookstore as either a hard copy or e-book. This was the same book that was used in Biology 184.

A used copy of the text is acceptable. We will not require you to use the text website maintained by the publisher, so you do not have to buy access.

### **Labs**

Labs begin on Monday, January 11. 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.

### **Course website**

Biology 186 has a CourseSpaces website. You will find there 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 would like to remind students that talking in class, texting, surfing, reading a newspaper and eating three-course dinners are all irksome to 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.

### **Evaluation**

Midterm exam 1	10%
Midterm exam 2	10%
Final exam	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 N.

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

You will also get an N if you do not write the final exam in April without a valid excuse.

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.

### **Exam policy**

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

During exams, the invigilators cannot answer any clarification questions. However, if you believe a question is bad (no correct answer, more than one equally correct answer), please bring your concerns to the attention of the invigilator who is collecting the exams.

If you must miss a midterm exam because of illness, accident, family affliction, or competition as a UVic athlete, you must notify the course coordinator (Dr. Beaulieu) as soon as possible and provide suitable documentation for your absence. You will be allowed to write a deferred midterm on the Saturday following that midterm. See below for information about time and place.

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) 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 a midterm exam or the final exam.

This term, the final exam period ends for all faculties on Friday, April 22; the 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 when the final exam schedule is drawn up in February.

### **Information about Midterm Exam 1 (Wednesday, February 3)**

The exam will be held from 7:00 – 9:00 PM. It will involve some questions from the lecture (all multiple choice), and some from the lab (written answer).

As in Biology 184, the class will write the exam in several rooms, according to first letter of last name.

<u>Last name</u>	<u>Room</u>
A – E	Bob Wright B150
F – K	Engineering and Computer Science 123
L – M	David Lam Auditorium (MacLaurin A144)
N – R	Human and Social Development A240
S – V	Harry Hickman 105
W – Z	Engineering and Computer Science 116

Students who have a commitment in another course (class, lab, tutorial) are eligible to write a deferred Midterm 1. This will take place on Saturday, February 6, 10:00 AM – 12:00 noon, in Engineering and Computer Science 125. Please notify the course coordinator (Greg Beaulieu, [gregoryb@uvic.ca](mailto:gregoryb@uvic.ca)) before the exam if you have such a commitment.

### **Information about Midterm Exam 2 (Thursday, March 3)**

The exam will be held from 7:00 – 9:00 PM. It will involve some questions from the lecture (all multiple choice; non-cumulative), and some from the lab (written answer; non-cumulative). Note that some of the rooms differ from the rooms used for Midterm 1.

<u>Last name</u>	<u>Room</u>
A – E	Bob Wright B150
F – K	Engineering and Computer Science 123
L – M	David Lam Auditorium (MacLaurin A144)

N – R        Human and Social Development A240  
S – V        David Turpin A120  
W – Z        Engineering and Computer Science 125

Students who have a commitment in another course (class, lab, tutorial) are eligible to write a deferred Midterm 2. This will take place on Saturday, March 5, 10:00 AM – 12:00 noon, in Bob Wright B150. Please notify the course coordinator (Greg Beaulieu, gregoryb@uvic.ca) before the exam if you have such a commitment.

### **Information about the final exam (April final exam period)**

The class will write the final exam together in the gym. It will involve some questions from the lecture (all multiple choice; cumulative from the beginning of the course) and some written questions from the lab (non-cumulative).

### **Deferred final exam**

For those students who need to defer the final exam for any of the reasons listed above, and who have submitted a RAC form, the deferred exam will be scheduled by the Examinations office, and will be written near the end of July. In some cases, alternative arrangements can be made. Contact the course coordinator (Dr. Beaulieu) for more information.

### **Grading**

At the University of Victoria, grades are submitted by instructors as percentages. These will be converted to letter grades by administration, 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.

You will receive a grade of N in the course under any of these circumstances:

- you do not pass the lab (20/40 or better, rounded to the nearest whole number by our spreadsheet), or do not complete one of the essential lab requirements
- you miss three or more labs, even with medical or other documentation
- you miss the final exam without a valid reason

### **Important dates**

On the UVic website 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 Biology 186 and to students wishing to add the course this term.

Monday, January 4	First day of classes
Monday, January 11	<b>Labs begin in Biology 186</b>
Sunday, January 17	Last day for 100% reduction of tuition fees for standard courses.
Wednesday, January 20	Last day for adding classes

Sunday, February 7	Last day for 50% reduction in tuition fees for standard courses. 100% of tuition fees will be assessed for courses dropped after this date.
Wednesday, February 3	<b>Biology 186 Midterm Exam 1, 7:00 – 9:00 PM</b>
Saturday, February 6	Biology 186 deferred Midterm 1, 10:00 AM – 12:00 noon
Monday, February 8 – Friday, February 12	Reading break
Monday, February 29	Last day for withdrawing from courses without penalty of failure
Thursday, March 3	<b>Biology 186 Midterm Exam 2, 7:00 – 9:00 PM</b>
Saturday, March 5	Biology 186 deferred Midterm 2, 10:00 AM – 12:00 noon
Friday, March 25	Good Friday, no classes
Monday, March 28	Easter Monday, no classes
Monday, April 4	Last day of classes
Thursday, April 7 – Friday, April 22	Final exam period

### **Lecture topics (tentative)**

Each instructor will let you know the relevant readings from the text.

#### *Rossi Marx – Cells and Molecules*

Molecules of life

Cell tour

Membranes and transport

Bioenergetics and enzymes

Cellular respiration

#### *Barbara Ehltng – Plant Structure and Physiology*

Plant structures

Water transport

Exploitation of light

Photosynthesis

Plant defence

#### *Rossi Marx – Animal Physiology*

Introduction to animal physiology

Thermo- and osmoregulation

Circulation and gas exchange

Neurons and nervous systems

Sensory and motor mechanisms

#### *Kim Curry – Molecular Biology*

DNA replication and gene expression