BIOLOGY 184 – Evolution and Biodiversity

Department of Biology, University of Victoria
Fall 2020

Welcome to the 2020 covid-19 edition of Biology 184. We'll all get through this together.

Course description
This course will survey all of biological diversity – prokaryotes, protists, plants, fungi and animals – and will use a fundamental fact of the living world, evolution, to tie together this diversity. It will also introduce genetics.

Lecture instructors

- Dr. Greg Beaulieu

Email gregoryb@uvic.ca
If you send an email, please put "Biology 184" in the message line.
Dr. Beaulieu will also be serving as **course coordinator**, so if you have any course business or other issues, apart from lab business, he is the person to contact.

- Dr. David Punzalan

Email: davidpunzalan@uvic.ca
If you send an email, please put "Biology 184" in the message line.

- Dr. Katy Hind

Email: biologylabs@uvic.ca
If you send an email, please put "Biology 184" in the message line.

- Dr. Patrick von Aderkas

Email: pvonader@uvic.ca
If you send an email, please put "Biology 184" in the message line.

Senior Laboratory Instructor

Dr. Katy Hind
Email: biologylabs@uvic.ca
If you send an email, please put "Biology 184" in the message line.

Prerequisite
Any one of: Biology 11, Biology 12, Biology 150A, Biology 150B, Biology 186. You may also take this course if you have a high school biology course from outside British Columbia, or a post-secondary biology course from another institution.

A course in chemistry at either the high school or university level is strongly recommended.

Structure and scheduling of the course
The course has four elements:

Asynchronous Lectures – The lectures will be delivered in the form of narrated PowerPoint presentations that we will post on the course website on Brightspace. You will be able to watch them according to your own schedule. You will not need PowerPoint on your computer. We will convert the PowerPoints to mp4 files that you can watch just by clicking on the title of the lecture.

Our plan is to post three lectures every Friday, each approximately 30 minutes.

Q-and-A with the lecturers
There are three ways we will be able to answer your questions. Each lecturer will let you know which format they prefer.

- First, the Brightspace site has a forum allowing students to post questions that the lecturer can read and answer. Both the questions and the answers will be publicly available to the whole class at any time, a valuable feature, because several students might be wondering about the same issue.

- Second, we can have synchronous Zoom Q-and-A sessions. These sessions will take place on Zoom at times the university has scheduled for synchronous delivery:
  Section A01: Monday, Thursday*, 8:30 – 9:45 AM
  Section A02: Monday, Thursday*, 11:30 – 12:45 PM
  Section A03: Monday, Thursday*, 3:30 – 4:45 PM

  We have chosen to use only the Monday time slots for live Q-and-A sessions on Zoom. A given instructor might or might not make use of these sessions. Attendance at these sessions will not be mandatory; if you have any questions, you may drop in and out as you wish. These sessions will not be recorded, so the questions and answers will not be available to students who have not attended the session.
  *The Thursday lecture time slots will not be used in this course.

  Please note that Monday, October 12, is Thanksgiving, so there will be no Zoom sessions on that day. Also, Monday, November 9 is part of UVic's Reading Break, and we will not have Zoom sessions on that day either.

- Third, you can email us directly with your questions or schedule a personal Zoom appointment. This would be appropriate if you have something personal or confidential to discuss.

Synchronous Labs – Labs are an important part of Biology. We have worked hard to put together meaningful labs. See the information about labs, below.

Online Exams – see the information about the online exams, below.

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.

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.

Biology 186, in January, will also use the third Canadian edition. You will be able to use the second Canadian edition in that course too.

New copies of the text come with access to the publisher's website, Mastering Biology, plus the etext. Some students find this access useful, but we do not require access in this course. If you are using the second Canadian edition of the text, which does not come with website access, you will not have to purchase website access to do well in this course.

If you buy a new book, or if you buy the etext + Mastering Biology, you will need a course ID and other information about accessing the Pearson website. Please see the sheet of instructions that we have posted for you on Brightspace under 'Getting Started'.

Labs

Labs begin the week of Monday, September 14. You must purchase a hard-copy lab manual and Foldscope for the labs. These are available through the UVic bookstore.

The laboratory portion of the course is worth 45% of your final grade. You must pass the lab in order to pass the course. Please see the introduction in your laboratory manual for full laboratory policies and details.

Attendance in the synchronous laboratory sessions is mandatory. If you miss more than two labs for any reason, even with a medical excuse, you will receive a failing grade (F) in the course.

Evaluation

The lecture portion of the course is worth 55% of your final grade. The lecture exams will not be cumulative. They will be open on Brightspace for several hours on the days stated, but you will be timed when you make your attempt, and you must finish the exam in a certain specified time. If you must stop in the middle of your exam attempt, due to internet problems or for some other reason, your clock will stop, and you can continue later without incurring a time penalty.

The exams will be open book. However, you may not consult anyone else, either in this course or outside it, to help you with your attempt. We ask on the honour system that you observe this rule.

- Thursday, October 1

Dr. Punzalan's topics 9% of course grade
20 multiple choice questions; 40 minutes

- Thursday, October 8

Dr. Hind's topics 5% of course grade
10 multiple choice questions; 20 minutes

- Thursday, October 22

Dr. von Aderkas' topics 9% of course grade
20 multiple choice questions; 40 minutes

- Thursday, November 19

Dr. Punzalan's topics 18% of course grade
40 multiple choice questions; 80 minutes

- Final exam period

Dr. Beaulieu's topics 14% of course grade
30 multiple choice questions; 60 minutes

Lab
See the lab manual
for breakdown 45% of course grade
100%

You must pass the lab in order to pass the course . If you fail the lab (<22.5/45), your course grade will be F.

Biology 184 has nine lab sessions (not including exams). If you miss three or more of these, you will receive a course grade of F, even if you have a medical excuse for the missed sessions.

In the lab, the Academic Integrity assignment is an official requirement of the course. That means that you must pass this assignment, or you will get an N (incomplete) in the course (see **Grading**, 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 lecture exams
If you are ill the day of a lecture exam, please get ahold of the course coordinator, Dr. Beaulieu (gregoryb@uvic.ca) to arrange a deferred writing.

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.

We cannot change your grade, except if we have made an error in determining it. There is no extra work that you can do to raise your grade. *Please do not ask us to raise your grade because you need or want a higher one.*

No supplemental final exam (second-chance final exam) will be given in this course, although, as described above, you may defer the final exam if you are ill that day.

You will receive a grade of N (a failing grade which indicates that an essential course requirement was not completed) if you do not complete the academic integrity assignment in the lab.

You will receive an F in the course in any of these cases:
- you miss three or more labs, even with medical or other documentation
- you do not pass the lab
- you pass the lab but have an aggregate course grade less than 50%.

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:
http://web.uvic.ca/calendar2020-09/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.

Lecture topics, text readings, Zoom sessions, exams

These readings might be changed by the instructors during the course; you will be notified of any changes. We give here the readings for both the new edition (3rd Canadian editon, 2021) and the previous one (2nd Canadian edition, 2018).

Dr. Punzalan

Lectures posted September 11, 18
Zoom sessions (if applicable) September 21, 28
Exam October 1

Descent with modification	Reading: pp. 498-514 (2nd ed., pp. 492-508)
Replication, Recombination & Mutation	Reading: pp. 246-258 (2nd ed., pp. 243-253), pp. 270-282 (2nd ed., pp. 256-278)
Phylogenetics and the Origins/Tree of Life	Reading: pp. 586-600 (2nd ed., pp. 582-593)
Prokaryotes	Reading: pp. 607-617 (2nd ed., pp. 603-615, 618-622)

Dr. Hind

Lectures posted September 25
Zoom sessions (if applicable) October 5
Exam October 8

Protist diversity	Reading: pp. 564 (The First Eukaryotes), Fig 25.10 (2nd ed., pp 560, Figure 25.10) pp. 628-634 (2nd ed., pp. 625-632) pp. 652-653 (2nd ed., pp. 647-649) including concept check 28.6
Supergroup Excavata	Reading: diplomonads pp. 635 (2nd ed., pp. 632) *omit parabasalids & euglenozoans*
Supergroup SAR	Reading: diatoms, brown algae, oomycetes, alveolates, dinoflagellates, apicomplexans pp. 637-641 (2nd ed., pp. 634-639) *omit ciliates* *omit rhizarians, radiolarians, forams & cercozoans*
Supergroup Archaeplastida	Reading: red algae, green algae pp. 645-647 (2nd ed., pp. 642-643)
Supergroup Unikonta	Reading: amoebozoans, pp. 647-649 (2nd ed., pp. 644-646) *omit opisthokonts*

Dr. von Aderkas

Lectures posted October 2, 9
Zoom sessions (if applicable) October 19
Exam October 22

Seedless plant diversity	Reading: Chapter 29, pp. 657-674 (2nd ed., pp. 652-669)
Seed plant diversity	Reading: Chapter 30, pp. 678-695 (2nd ed., pp. 672-687)

Dr. Punzalan
Lectures posted October 16, 23, 30; November 6
Zoom sessions (if applicable) October 26; November 2, 16
Exam November 19

Fungal diversity	Reading: pp. 698-715 (2nd ed., pp. 692-710)
Invertebrate diversity	Reading: pp. 717-719, 723-728 (2nd ed., pp. 712-714, 719-724), pp. 731-761 (2nd ed., pp. 726-756)
Vertebrate diversity	Reading: pp. 765-791 (2nd ed., pp. 759-785)

Dr. Beaulieu
Lectures posted November 13, 20, 27
Zoom sessions (if applicable) November 23, 30
Exam Final exam period (December)

Genetics	Chapter 14, pp. 285-300; Chapter 15, pp. 312-314 (2nd ed. Chapter 14, pp. 281-296; Chapter 15, pp. 307-309)
Introduction to evolution	Chapter 22 (2nd ed. Chapter 22)
Evolution of populations	Chapter 23 (2nd ed. Chapter 23)
Speciation	Chapter 24, pp. 536-546 (2nd ed. Chapter 24, pp. 530-540)