BIOL184

Evolution and Biodiversity

University of Victoria
Syllabus (Fall 2024)

General Course Information

Welcome! This course will survey biological diversity – prokaryotes, protists, plants, fungi and animals – and will use a fundamental fact of the living world, evolution, to tie together this diversity. We will introduce you to population genetics and evolution. The course will be taught synchronously and 'face-to-face' and will be complemented by online tools.

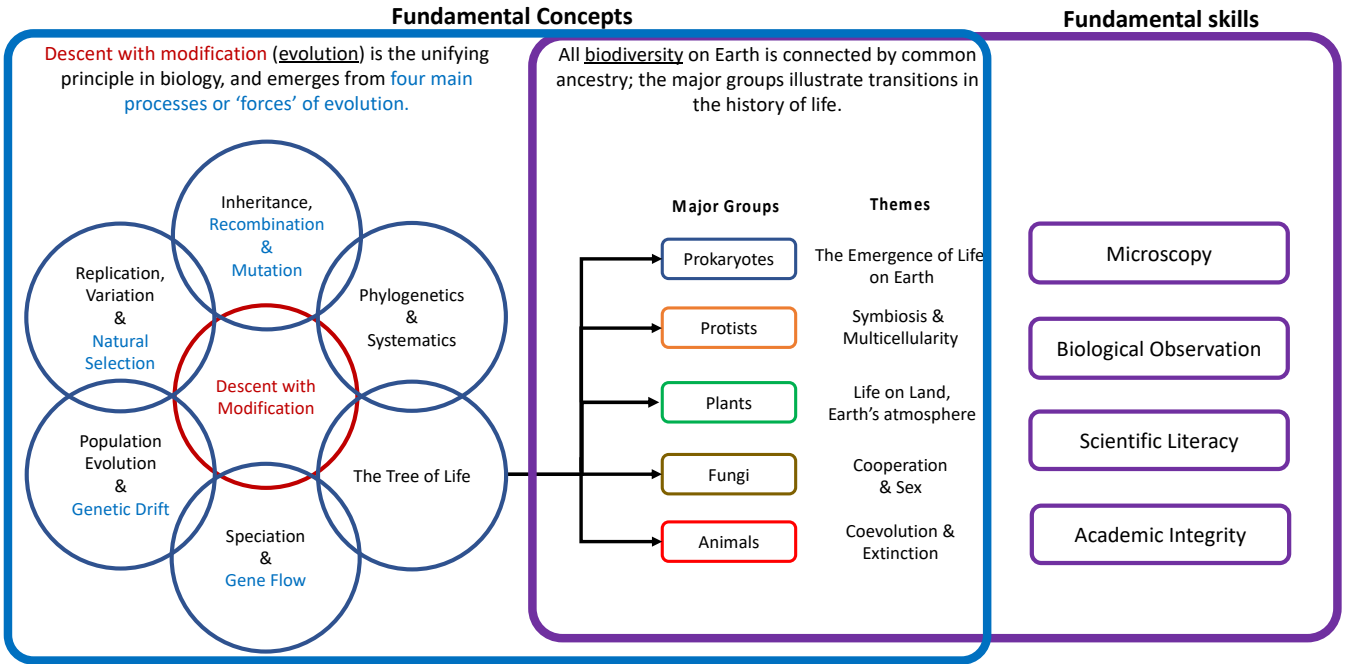
Lecture Contact Hours and Locations

Mondays & Thursdays @
8:30am-9:50am (A01) in Bob Wright Centre B150, or
11:30am-12:50pm (A02) in Bob Wright Centre B150, or
3:30pm- 4:50pm (A03) in ECS 123

NOTE: *Enrolment/attendance in a laboratory section is mandatory*

Intended Learning Outcomes

After completion of this course, you will be able to demonstrate a solid understanding of the evolutionary process, and the logical and quantitative basis of its study. You will be able to classify the major groups of organisms based on hypothesized evolutionary relationships. You will be able to demonstrate fundamental skills including microscopy, biological observations, and interpreting phylogenetic trees. Identifying different types of scientific literature and understanding of/adherence to academic integrity standards are also essential learning outcomes. A graphical representation of the intended learning outcomes also appears below.



Guiding Philosophy and Practices

Students and instructors share the responsibility of cultivating of a **safe**, **inclusive,** and **kind** learning environment. We think that the keys to student success (in the course, and beyond) lies in practicing strong learning habits, and fostering a healthy mind, and healthy relationships. We also believe in having fun.

Prerequisites

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. If in doubt, contact davidpunzalan@uvic.ca.

Instructors:

Dr. David Punzalan (davidpunzalan@uvic.ca)
Dr. Patrick von Aderkas (pvonader@uvic.ca)
Dr. Lan Tran (biologylabs@uvic.ca)

About the Instructors

This course is co-taught by Dr. David Punzalan (Lectures and Course Coordination), Dr. Patrick von Aderkas (Lectures), and Dr. Lan Tran (Laboratory Coordination). Dave originally hails from Ontario and specializes in insect ecology and evolutionary biology. As a relative newcomer to the Pacific Northwest, he spends most of his free time learning about local biodiversity by chasing bugs, exploring tidepools, and snorkelling. Patrick is also originally from Ontario and does research on embryology and sexual fluids of plants, such as nectar and pollination drops. He has been a professor at UVic since 1989. His main interest is the evolution of reproduction in gymnosperms. Lan is a local and is a plant biologist with research interests in how plants produce natural chemicals and pollinator interactions. She previously studied at UVic and at UBC. You can find out more about the instructors under 'Course Information' on Brightspace.

Required Materials and Technology

1. This course will require students to meet the UVic minimum technology requirements: https://www.uvic.ca/systems/status/features/min-tech-requirements.php
2. The Brightspace (BRS) course website: https://bright.uvic.ca/d2l/home/375670 will serve as the primary means of sharing learning resources, so please check this page regularly for important information and announcements.
3. Textbook: OpenStax Biology 2e (https://openstax.org/details/books/biology-2e); this textbook can be downloaded for free and accessed electronically using a laptop, desktop, tablet, or smartphone; if you want a printed version, you must purchase one directly from OpenStax.
4. Lecture materials: live lectures will be recorded and will be posted on Brightspace along with electronic (.pdf) versions of the lecture slides.
5. Lab materials: Achieve from Macmillan Learning (https://www.uvicbookstore.ca/text/search/results) and a lab coat, which can be purchased from the UVic Bookstore. Lab documents will be posted on BRS.
6. In case instructors have to deliver lectures remotely via Zoom, be sure to login first using your UVic Single Sign On (SSO) and then use the link provided by the instructor in BRS; You can install Zoom using this link: https://www.uvic.ca/systems/support/avmultimedia/zoomvideoconferencing/installzoom.php

Assessment

You will have the opportunity to demonstrate your progress and proficiency through various forms of evaluation, including:

Lecture Component (60%)	
Pre-Lecture Online Quizzes or Surveys (10 x 0.5%)	5%
Lecture Test 1	12%
Lecture Test 2	15%
Lecture Final Exam	28%
Laboratory Component (40%)	
Integrity Matters! Course Completion **(course requirement)**	2%
Scientific Literature Workshop Assignment	2%
Reading, Researching, and Referencing Assignment	2%
In-Lab Assignments	12%
Achieve Pre-Labs	5%
Achieve Post-Labs	5%
Lab Exam **(course requirement)**	12%

To pass the course, students must:

1) Write the final **Lecture Final Exam**
2) Write the **Lab Exam** – **a course requirement**
3) Complete the Integrity Matters **lab** assignment – **a course requirement** that must be completed by Oct 4th (no deferral will be offered after this date)
4) Meet the minimum **lab** attendance requirement (attend at least 4 of the 6 **in-person** labs)
5) Score a grade of 20, or greater, points out of a possible 40 (50%) in the **Laboratory** component; scores lower than 50% will not be permitted to write the lecture final exam
6) Score a grade of 50.0 points, or greater, combined across **Lecture** and **Laboratory** components

If any of 1 through 4 are not completed, the student will automatically fail the course and receive an "N" ('Incomplete') on their transcript.

If a student successfully completes 1 through 4, but is not successful in either 5 or 6, they will receive an "F" on their transcript.

Additional inquiries and Contact Hours

Lecture content: There are no scheduled office hours to review lecture content, but any questions should be made using the appropriate discussion forum on Brightspace: https://bright.uvic.ca/d2l/le/375670/discussions/List
additional inquiries, including appointments to meet can be made via e-mail to the appropriate instructor.
Laboratory content: You are always welcome to make an appointment with your teaching assistant (TA) to review lab material. Inquiries about lab registration should be emailed to biology.reghelp@uvic.ca. For all other lab inquires, email biologylabs@uvic.ca.

Please include "BIOL 184" in the subject line of all e-mail correspondence
We try to get back to you within 48h

NOTES: the assigned readings are subject to change, and at the discretion of instructors. Readings refer to chapters/sections in OpenStax Biology 2e. For information regarding Labs, check the lab manual.

Week	Monday	Thursday	Optional Readings
1	*Sep 2* Labour day *(no classes)*	*Sep 5* Descent with Modification, Phenotypic variation	18.1
2	*Sep 9* Replication and Fitness	*Sep 12* Mutation and Recombination	10.1 – 10.2 11.1 – 11.2
3	*Sep 16* Phylogenetics I	*Sep 19* Phylogenetics II and the Domains of Life	20.1 – 20.3 21.1
4	*Sep 23* Prokaryotes	*Sep 26* **LECTURE TEST 1**	22.1 – 22.3
5	*Sep 30* Truth & Reconciliation *(no classes)*	*Oct 3* Protists I	23.1 – 23.4
6	*Oct 7* Protists II	*Oct 10* Plants I	25.1 - 25.3
7	*Oct 14* Thanksgiving *(no classes)*	*Oct 17* Plants II	25.4
8	*Oct 21* Plants III	*Oct 24* Plants IV	26.1 – 26.4
9	*Oct 28* **LECTURE TEST 2**	*Oct 31* Fungi	24.1 – 24.3
10	*Nov 4* Animals I	*Nov 7* Animals II	27.1 – 27.4 28.1 – 28.2
11	*Nov 11* Reading Break *(no classes)*	*Nov 14* Animals III	28.4 – 28.6
12	*Nov 18* Animals IV	*Nov 21* Mendelian & Population Genetics	28.7, 29.1 12.1 – 12.3, 19.1
13	*Nov 25* Genetic Drift	*Nov 28* Adaptive Evolution	19.2 – 19.3
14	*Dec 2* Gene Flow & Speciation	*Dec 5* Study Break begins	18.2 – 18.3

Schedule of Major Assessments and Modes of Examination

The **Lecture** assessments (quizzes, tests and exams) will be administered online using Brightspace (BRS). These assessments will be open book and must be written individually, using a student's own mobile device or home computer, or on computer on campus (a limited number will be reserved for this purpose). The **Lab** assessments will also be administered using BRS. In all cases, students who need to write the deferred assessment should contact the course coordinator (davidpunzalan@uvic.ca). The dates/times of each assessment, and their mode of examination, are summarized below.

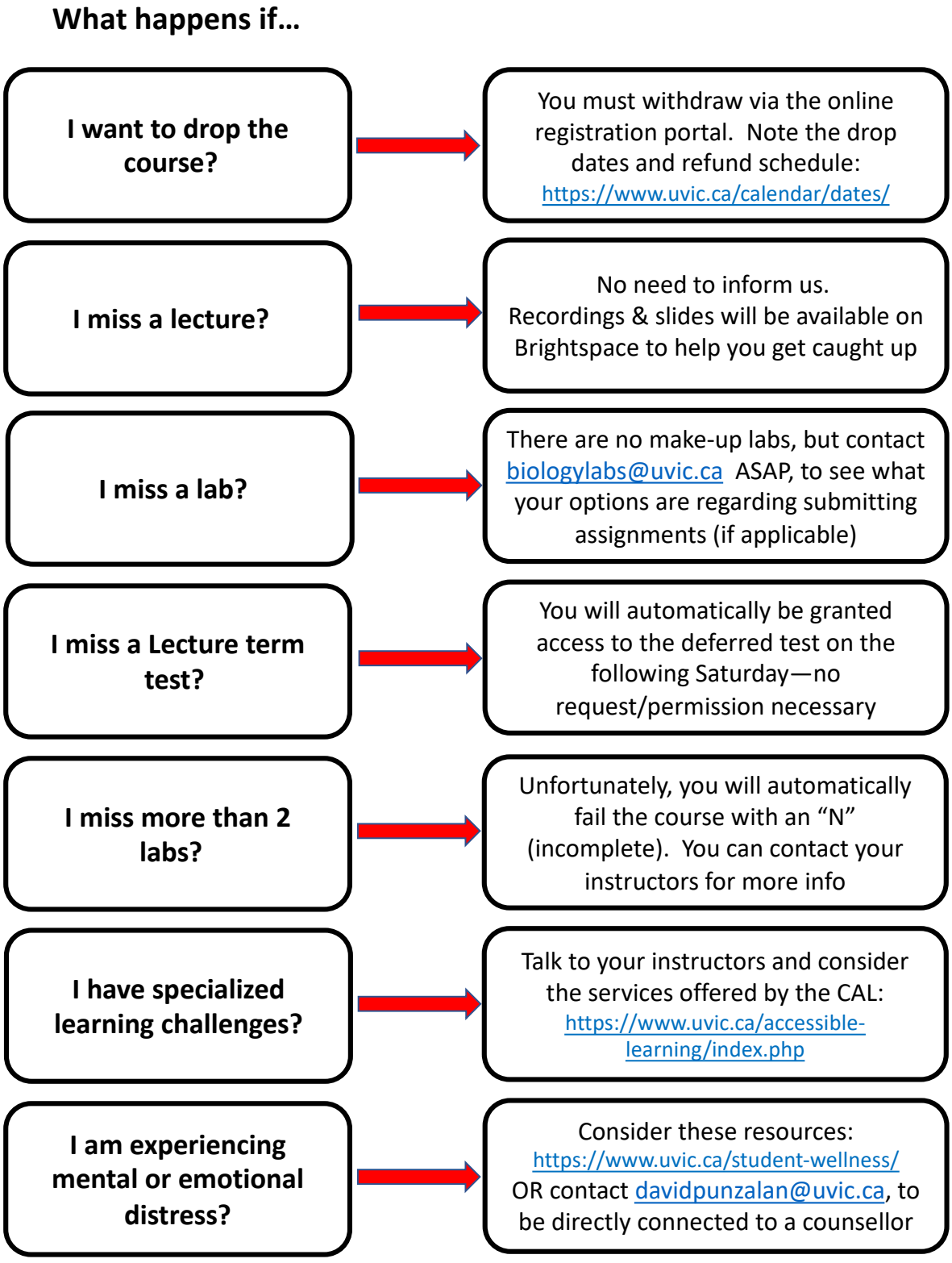
Major Assessments	Date/Time	Mode
Lecture Test 1	September 26th, during scheduled lecture time OR September 28th, at 9am (deferred)	Online, BRS
Lecture Test 2	October 28th, during scheduled lecture time OR November 2nd, at 9am (deferred)	Online, BRS
Lab Exam	During the lecture final exam	Online, BRS
Lecture Final Exam	During University Exam Period, TBD	Online, BRS
TBD = to be determined		

Other Important Dates (check BRS for lab assignment due dates)

September 2nd – First lecture
September 16th – Labs begin **(online)**
September 17th – Last day for 100% reduction of tuition fees for standard first term courses
September 20th – Last day for adding courses – **you must be registered in a lab by this date** to remain in the course
September 23rd – Labs begin **(in-person)** – you must be registered in the lab section in order to hold your place in the course
September 30th – Observance of National Day of Truth and Reconciliation (university closed)
October 14th – Thanksgiving Day (university closed)
November 11th –13th – Reading Break
December 2nd – Last lecture
December 7th – Exam period begins

Frequently Asked Questions

Detailed policies are outlined in this syllabus, as well as the lab manual—please read those carefully. For ease, a selection of questions and answers are depicted in the graphic, below.



Syllabus Note: Study in Progress

Exam completion times and grading outcomes of this course are the subject of a study being conducted by Dr. Mark Laidlaw and Dr. Travis Martin (Department of Physics and Astronomy). The purpose of this research is to characterize student exam submission behaviours, and examine how they correlate with student performance. One of the factors that will be tested includes the maximum duration assigned, which may imply status as a student with extended time accommodations. The anticipated benefit of this is to provide guidance data for academic administrators in determining policies on universal design.*

The data on completion times and durations will be kept separate from performance data until after the course has ended and final grades have been submitted. Furthermore, the analysis of the exam completion times and grades for students in this course will be performed using anonymized data, free of student names and student ID numbers, after the completion of the course and submission of final grades. The use of the data, and any collected timing data, will not affect your grade in any way.

Students may opt out of having their data analyzed for this study by sending an email to Dr. Mark Laidlaw or Dr. Travis Martin. Opting out of the analysis will in no way affect performance in the course.

If you have any questions about how your data will be used, or details about the study, you may contact the Data Steward, Dr. Doug Briant (biochair@uvic.ca), or you may contact the researchers, Dr. Travis Martin (travismartin@uvic.ca) and Dr. Mark Laidlaw (laidlaw@uvic.ca). You may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca).

*Note: Universal Design is a modern pedagogical approach to address accessibility in courses. The approach argues that courses should be designed such that the environment and course policies should be equally usable by all people, regardless of ability or disability, as much as possible. There are many approaches for implementing Universal Design in courses, and these methods vary across disciplines.

Appendix & Resources

Territory Acknowledgment

The instructors of BIOL184 are grateful to live and work in the unceded territories of the Lekwungen speaking First Nations, and we support the University of Victoria's official territory acknowledgment:

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

Code of Conduct, and Commitment to Equity, Diversity and Inclusion (EDI)

All participants of BIOL184 are expected to treat each other with mutual respect. The course team welcomes students of all backgrounds, regardless of nationality, ethnicity, gender, sexual orientation, religion, age, etc.

Wellness, Safety, and Support

We encourage students to use the support services to address their needs, including Mental Health and Wellness (https://www.uvic.ca/student-wellness/), and Sexualized Violence Prevention and Education (https://www.uvic.ca/sexualizedviolence/get-support/on-campus/index.php).

Accessibility and Special Needs

Students with special needs will be welcomed and accommodated, provided those needs are registered through the Centre for Accessible Learning (https://uvic.ca/services/cal; phone: 250-472-4947)

University and Course Policies

Public Health Policies

All staff and students are expected to abide by the guidelines provided by the University of Victoria https://www.uvic.ca/covid19/).

Academic Integrity

The University of Victoria and the Department of Biology take academic integrity (including plagiarism) as a serious matter. Please read this:
https://www.uvic.ca/calendar/undergrad/index.php#/policy/Sk_0xsM_V

Missed examinations and assignments

You are NOT required to provide a medical note. If a test is missed (with valid reason, including Varsity sports), contact your instructor immediately. Your instructor may opt to have you write a deferred test (scheduled for 9am on the Saturday following the original test date), or have those grades reallocated to another assessment. If the Final Lecture Exam and/or Lab Exam are missed, arrangements must be made to: 1) Write a deferred exam before the end of the exam period, or 2) Request an Academic Concession to write the exam at a later date (https://www.uvic.ca/students/academics/academic-concessions-accommodations/request-for-academic-concession/index.php). For missed laboratory assignments, refer to the laboratory manual and contact your TA/Senior Laboratory Instructor as soon as possible.

Course Grade and Academic Transcript

Grades for all UVic courses are submitted as percentiles. A student's academic transcript will include the percentile grade and a letter grade plus the class average and the number of students registered in the course at the time of the final exam. Percentiles will be rounded to the nearest whole number; a grade of xx.5 will be rounded up. Percentile grades will be converted to letter grades on the student's academic transcript according to the table given below.

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%

A grade less than 50% is a failing grade and results in an "F" on your transcript.
Failure to complete lab requirements, including missing more than 2 labs will result in an incomplete grade and an "N" on your transcript