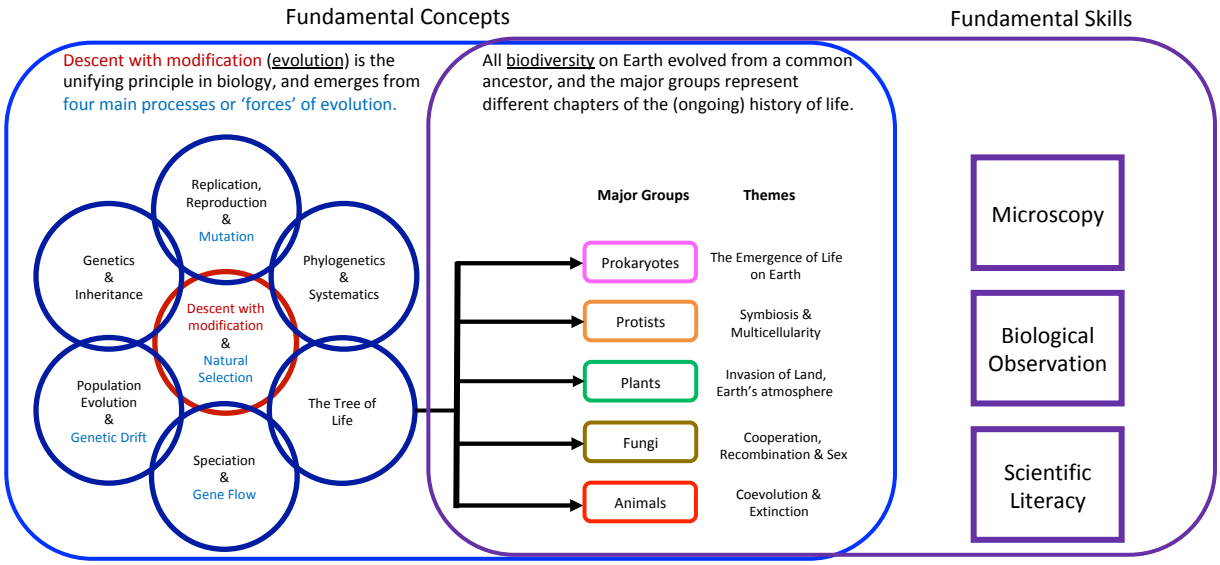
BIOL 184 – Evolution and Biodiversity
University of Victoria
Syllabus (Summer 2021)

General Course Information

Welcome! 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. The course will be offered in an online format, which means that students will interact with their Instructors and Teaching Assistants, and each other, using various software applications (see the section on Course Website and Materials).
This is a condensed course that is only seven weeks long and will move very quickly. You are permitted to take more than one summer course, however, the requirements will be demanding. It is not recommended that students take more than two condensed online courses at one time.

BIOL 184 COURSE CONCEPT MAP AND LECTURE AND LAB OUTCOMES



Contact Hours & Delivery of Course Materials

Lectures: Monday, Wednesday & Thursday, 8:30am - 10:20am
**These are official timetable hours, but most lectures will be delivered asynchronously*
Labs**: Monday and Wednesday, 11:30am (B01) or 2:30pm - (B02)
***Enrolment in the laboratory section is mandatory, and students are required to attend live-stream laboratory sessions synchronously*

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.

About the Instructors

This course is co-taught by Dr. David Punzalan (Lectures and Course Coordination) and Dr. Katy Hind (Laboratory Coordination). Dave originally hails from Ontario and specializes in insect ecology and evolutionary biology. As a new (2019) transplant to Victoria, he spends most weekends learning about Pacific Northwest biodiversity by beachcombing, staring into tidepools, and chasing bugs. Katy is also from Ontario, but now calls Victoria home. Her background is in marine biology and her research focuses on discovering and describing new species of seaweeds. In addition to Biology 184, Katy enjoys teaching upper level botany courses at UVic and field courses at the Bamfield Marine Sciences Centre on the west coast of Vancouver Island.

Contacting the Instructors

Info regarding the Lecture portion should be directed to Dave (davidpunzalan@uvic.ca).
Info regarding the Laboratory portion should be emailed to Katy (khind@uvic.ca).
please include "BIOL 184" in the subject line of e-mails, and expect a response within 48h.

Intended Learning Outcomes

After completion of this course, you will be able to distinguish the major groups of living organisms, and you will demonstrate a solid understanding of the evolutionary process (including natural selection and inheritance). When asked, you will demonstrate fundamental laboratory skills including microscopy, biological observations, and interpreting phylogenetic trees. Critical evaluation of scientific literature is also an essential learning outcome.

Assessment

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

Preparation Survey	1%
Laboratory Assignments	30% (check Lab Manual for breakdown)
Midterm	29% (24% Lecture Material + 5% Lab Material)
Lab Final	10%
Lecture Final	30%

NOTE: you must pass the laboratory section (including attendance) to pass the course

Course Website and Materials

1. Brightspace (BRS) course website: https://bright.uvic.ca/d2l/home/136731. Please check this page regularly for important information and announcements.
2. Zoom (https://www.uvic.ca/systems/support/avmultimedia/zoomvideoconferencing/installzoom.php)
3. Microsoft Teams (https://www.uvic.ca/systems/support/computerssoftware/microsoft365/index.php)
4. Lecture materials: video recordings of lectures and electronic (.pdf) versions of the lecture slides will be posted on BRS.
5. Lab materials: You are required to purchase a foldscope and hard copy lab manual from the UVic bookstore (https://www.uvicbookstore.ca/merch/school-essentials/lab-supplies/3185).
6. Required textbook: *Campbell Biology*, third Canadian edition, by Reece, Urry, Cain, Wasserman, Minorsky and Jackson. The text has a picture of a red 'berry' (actually the outer covering of yew cone) on the cover. It is available through the UVic Bookstore. This is the same book that will be used in Biology 186. (A list of required readings will be posted on the course website)
7. A digital camera, and/or cellular phone with camera are a requirement to complete many of the online lab activities.

Important Dates

Monday May 10th, 8:30am -10:20am PDT – first lecture
Monday May 10th, first lab at scheduled B01 (11:30am) & B02 (2:30pm) lab times
Monday May 24th, Victoria Day Holiday – NO LABS
Monday May 31st, lab & lecture combined midterm during B01 & B02 lab times
Monday June 21st, lab final exam at scheduled B01 & B02 lab times
Thursday June 24th, 8:30am - 10:20am PDT – lecture final exam

Reading List for Lecture Content

**subject to change*
***page numbers are for Campbell 3rd edition, but I've added the page numbers for the 2nd edition in parentheses*

Week 1:
Ch 22. Descent with Modification: a Darwinian View of Life, pp. 498-514 (2nd ed., pp. 492-508)
Ch 12. The Cell Cycle, pp. 246-258 (2nd ed., pp. 243-253)
Ch 13. Meiosis and Sexual Life Cycles, pp. 270-282 (2nd ed., pp. 256-278)
Ch 26. Phylogeny and the Tree of Life, pp. 586-600 (2nd ed., pp. 582-593)

Week 2:
Ch 27. Bacteria and Archaea, pp. 607-617 (2nd ed., pp. 603-615, 618-622)
Ch 28. Protists, pp. 629-653 (2nd ed., pp. 625-649)

Week 3:
Ch 29. Plant Diversity I: How Plants Colonized Land, pp. 657-674 (2nd ed., pp. 652-669)
Ch 30. Plant Diversity II: The Evolution of Seed Plants, pp. 678-695 (2nd ed., pp. 672-687)

Week 4:
Ch 31. Fungi, pp. 698-715 (2nd ed., pp. 692-710)
Ch 32. An Overview of Animal Diversity, pp. 717-719, 723-728 (2nd ed., pp. 712-714, 719-724)

Week 5:
Ch 33. An Introduction to Invertebrates, pp. 731-761 (2nd ed., pp. 726-756)
Ch 34. The Origin and Evolution of Vertebrates, pp. 765-791 (2nd ed., pp. 759-785)
Ch 14. Mendel and the Gene Idea, pp. 285-300 (2nd ed., pp. 281-296)

Week 6:
Ch 23. Evolution of Populations, pp. 517-533 (2nd ed., pp. 510-527)
Ch 24. The Origin of Species, pp. 536-552 (2nd ed., pp. 530-546)

Tentative Topic Schedule

With the exception of May 10th, all lecture content will be delivered asynchronously, but every Thursday (and the last Wednesday) will have time allocated to (optional) live Zoom sessions (Live Learn + Q & A). The topic schedule is a rough guide for the order/pace of presentation of content.

Week	Monday	Wednesday	Thursday
1	*May 10* **8:30 am –** **Course Intro & Descent with Modification** **Lab 1:** **Intro to Online Learning**	*May 12* Replication, recombination and mutation **Lab 2: Scientific Literature**	*May 13* Phylogenetics I 9:30 am - Live Learn + Q&A
2	*May 17* Phylogenetics II **Lab 3: Microscopy & Prokaryotes**	*May 19* The 'Tree of Life' + Prokaryotes **Lab 4:** **Protist Diversity**	*May 20* Protists 9:30 am - Live Learn + Q&A
3	*May 24* Holiday - No lecture or lab	*May 26* Intro to Plants & Mosses **Lab 5: Diversity of Land Plants**	*May 27* Ferns & Gymnosperms 9:30 am - Live Learn + Q&A
4	*May 31* Angiosperms **Lab & Lecture Midterm**	*June 2* Fungi I + Fungi II **Lab 6:** **Fungal Diversity**	*June 3* Fungi III 9:30 am - Live Learn + Q&A
5	*June 7* Intro to Animal Diversity **Lab 7: Invertebrate Diversity**	*June 9* Lophotrochozoa **Lab 8:** **Invertebrate Diversity II**	*June 10* Ecdysozoa 9:30 am - Live Learn + Q&A
6	*June 14* Deuterostomia **Lab 9:** **Vertebrate Diversity**	*June 16* Genetics **Lab 10:** **Lab Presentations**	*June 17* Evolution of Populations 9:30 am - Live Learn + Q&A
7	*June 21* Speciation **Lab Final Exam**	*June 23* 8:30 am - Synthesis/Review and Live Learn + Q&A No lab	*June 24* **8:30 am -** **Lecture Final Exam**

** items in **bold** indicate mandatory attendance*

*** check the syllabus for additional details and the laboratory schedule for assignment due dates*

Appendix: Policies

Academic Integrity

The University of Victoria and the Department of Biology take academic integrity (including plagiarism) as a serious matter. Please read this:
https://web.uvic.ca/calendar2020-01/undergrad/info/regulations/academic-integrity.html

Missed examinations and assignments

You are NOT required to provide a medical note. If the Midterm is missed (with valid reason), your instructor may opt to have you write a make-up test at a later date. If the Final Exam is missed, arrangements must be made to: 1) Write the exam before the end of the exam period, or 2) Request an Academic Concession in order to write the exam at a later date. For missed laboratory assignments, refer to the Laboratory Manual and contact your TA/Senior Laboratory instructor.

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)

Commitment to Inclusion and diversity

UVic is committed to promoting, providing and protecting a supportive and safe learning and working environment for all its members. All students and staff are expected to treat each other with respect. For more info on University policies regarding student conduct, please see this link: https://www.uvic.ca/services/studentlife/student-conduct/index.php

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 will result in an "F" on your transcript
Failure to complete lab requirements, or missing more than 2 labs will result in failing grade and an "N" on your transcript
No supplemental exams will be offered for this course