

**BIOL 184 – Evolution and Biodiversity
University of Victoria
Syllabus (Summer 2020)**

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.

Contact Hours & Delivery of Course Materials

Lectures: Monday, Wednesday & Thursday, 8:30am - 10:20am

Labs: Monday, 2:30pm - 5:20pm

**This course will employ a combination of live streaming, pre-recorded videos, and online assignments*

****Enrollment in the laboratory section is mandatory, and *students are required to attend live-stream laboratory sessions***

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 biologylabs@uvic.ca.

****please include "BIOL 184" in the subject line of e-mails, and expect a response within 48h.***

Course Website and Materials

- 1) Course Spaces (CS) website: <https://coursespaces.uvic.ca/course/view.php?id=72794>
Please check this page regularly for important information and announcements.
- 2) Lecture materials: electronic (.pdf) versions of the lecture slides will be posted on CS after class.
- 3) Lab materials: You are required to purchase a foldscope from the UVic bookstore (<https://www.uvicbookstore.ca/merch/school-essentials/lab-supplies/3185>). The lab manual will be posted as .pdf files before each lab.

- 4) 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)

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)
Final	40% (30% Lecture Material + 10% Lab Material)

***Please note: you must pass the laboratory section to pass the course**

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 exceptions of June 22nd and July 30th classes, all lecture content will be delivered asynchronously, but every Thursday will have time allocated to live learning and Q & A. The topic schedule is a rough guide for the order/pace of presentation of content.

	Monday	Wednesday	Thursday
Week 1	<i>June 22</i> Descent with modification & natural selection	<i>June 24</i> Replication, reproduction & mutation	<i>June 25</i> Phylogenetic systematics
	8:30 AM: Course introduction		9:30 AM: Live Learn + Q & A
	2:30 PM: Microscopy and Scientific Literature Lab		
Week 2	<i>June 29</i> Prokaryotes	<i>July 1</i> Holiday	<i>July 2</i> Protists
	2:30 PM: Prokaryotes and Protists Lab		9:30 AM: Live Learn + Q & A
Week 3	<i>July 6</i> Bryophytes & Ferns	<i>July 8</i> Gymnosperms	<i>July 9</i> Angiosperms
	2:30 PM: Plant Diversity Lab		9:30 AM: Live Learn + Q & A
Week 4	<i>July 13</i> *No Lecture*	<i>July 15</i> Fungi	<i>July 16</i> Invertebrates, Part I
	2:30 PM: MIDTERM [complete Fungi Lab Module asynchronously]		9:30 AM: Live Learn + Q & A
Week 5	<i>July 20</i> Invertebrates, Part II	<i>July 22</i> Vertebrates	<i>July 23</i> Genetics
	2:30 PM: Invertebrate Diversity Lab		9:30 AM: Live Learn + Q & A
Week 6	<i>July 27</i> Population Evolution	<i>July 29</i> Speciation	<i>July 30</i> Synthesis & Review
	2:30 PM: Vertebrate Diversity Lab		8:30 AM Live Learn + Q & A
Week 7	<i>August 3</i> Holiday	<i>August 5</i> 8:30 AM: FINAL EXAM	

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> (Campus Services Building, rm 150; 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.

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%

<p>F (Fail) is a grade less than 50% No supplemental exams will be offered for this course</p>
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