**BIOL 355 Evolution Syllabus – Winter 2025** – CRN 20363

**General Course Information**
This course aims to provide a foundation for the study and understanding of biological evolution, which is the framework that underlies the study of the diversity of all living organisms, with the goal of understanding how and why this diversity has come about. This course will provide an overview to the study of how and why organisms and genes change, and will cover a broad array of topics, including population genetics, phylogenetics, speciation, species interactions, molecular evolution and genomics.

**Lecture Location & Hours**
Monday & Thursday, 11:30am – 12:50pm, MacLaurin A144

**Course Instructor**
This course is taught by Dr. Steve Perlman. Steve is an evolutionary biologist whose research focuses on parasites and beneficial microbes that infect insects and other invertebrates. He has been a professor at UVic since 2005. In recent years, he has also taught BIOL 312 (Entomology), BIOL 435 (Molecular Evolution), and has been the Biology Undergraduate Honours Advisor.

**Contact Information, and Office Hour Information**
Email: stevep@uvic.ca
Office hours: Monday, 1pm – 2pm, Cunn 160F (enter through 160D)

**Course Website and Materials**
You can find the course website on Brightspace. Be sure to check this website regularly for important information and announcements. Lecture slides will be posted on Brightspace after class. There is no required textbook for this course.

**Intended Learning Outcomes**
After completion of this course, you will have received an overview of the conceptual framework underlying biological evolution, and that is grounded in population genetics. You will have learned about the major forces shaping evolutionary change, which are: mutation, natural selection, genetic drift, gene flow, and recombination. You will have gained skills for generating and testing hypotheses to distinguish between adaptive and other evolutionary forces. You will have gained experience in numeracy and the ability to understand and solve basic population genetic equations and simulations that will allow you to be able to predict the fate of genetic variation. You will gain experience reading, understanding, and synthesizing primary scientific research articles and figures from these articles. You will have learned current knowledge about the major prokaryotic and eukaryotic lineages, how they are related to each other, and the major forces and features shaping their evolution.

**Assessments**

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| Midterm test 1 (Thu. Feb. 6) | 25% |
| Midterm test 2 (Thu. Mar. 13) | 25% |

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| Final (exam period, TBA) | 30% |
| Scientific Literature project (TBA) | 20% |

Penalty for scientific literature project late submission: 5% per day.

To pass the course, students must:
1) Complete the final exam.
2) Complete two of the following: a) midterm 1, b) midterm 2, c) scientific literature project.
3) Score a grade of 50 points, or greater, combined across assessments.

If either 1 or 2 are not completed, the student will automatically fail the course and receive a grade of “N” on their transcript. N is a failing grade and factors into the GPA as a value of 0. If a student completes 1 and 2 but is not successful in 3, they will receive an “F” on their transcript.

## Appendix: Policies & Additional Information

**UVic Territory Acknowledgment:** *We acknowledge and respect the lək̓ʷəŋən peoples on whose traditional territory the university stands, and the Songhees, Esquimalt and WSÁNEĆ peoples whose historical relationships with the land continue to this day.*

### Missed tests and exams:

Students who miss a test or exam are expected to contact their instructor as soon as possible. Valid excuses for missed tests include illness, emotional trauma, and UVic-sponsored sporting activities. If a student misses a midterm, the marks for that midterm will be distributed to the final exam. If a student misses two midterms, they will receive a grade of "N". Note that marks for completed midterms will not be dropped and redistributed to the final exam.
If a student misses the final exam, they are required to submit a request for academic concession, with associated documentation, as outlined in the UVic Calendar (https://www.uvic.ca/registrar/students/appeals/acad-concession/index.php).
Students are reminded that final exams in the Faculty of Science run from April 7 through April 25. Final exams will not be rescheduled for students who make travel plans that conflict with the officially scheduled final exam for this course.
Please note that no supplemental tests or exams will be offered in this course.

### Important Dates:

Last day for 100% reduction of tuition fees for standard courses – Sun. Jan. 19
Last day for adding second term courses – Wed. Jan 22
Last day for 50% reduction of tuition fees for standard courses – Sun. Feb. 9
Last day for withdrawing from 2nd term courses without penalty of failure – Fri. Feb. 28
Reading Break – Mon. Feb. 17 until Fri. Feb. 21
Last day of classes – Fri. Apr. 4
Exam period – Apr. 7–25

### Important UVic links:

Academic important dates: https://www.uvic.ca/calendar/dates/
Academic calendar: https://www.uvic.ca/calendar/undergrad/
Academic concession guidelines:
https://www.uvic.ca/calendar/undergrad/index.php#/policy/BymcP73U9
Academic accommodations: https://www.uvic.ca/accessible-learning/index.php
Academic integrity:
https://www.uvic.ca/calendar/undergrad/index.php#/policy/Sk_0xsM_V

### Academic Integrity:

As a teacher, mentor, scientist, researcher, and member of the University of Victoria community, academic integrity is of the highest importance to me. Students are required to abide by all academic regulations set out in the University calendar, including standards of academic integrity. Violations of academic integrity (e.g. cheating and plagiarism) are considered serious and may result in significant penalties.
Please read the following—you are expected to abide by the terms outlined here:
https://www.uvic.ca/advising/_assets/docs/tri-fac-student-code-of-conduct.pdf
https://www.uvic.ca/calendar/undergrad/index.php#/policy/Sk_0xsM_V
https://www.uvic.ca/students/academics/academic-integrity/index.php

To help avoid plagiarism and cheating, please read the UVic Libraries' plagiarism guide: https://www.uvic.ca/library/research/citation/plagiarism/

Note that use of AI software, such as ChatGPT, is not permitted for the scientific literature project. I reserve the right to use plagiarism detection software or other platforms to assess the integrity of student work.

Before handing in coursework for evaluation, students will be required to complete the Integrity Matters module that is available in Brightspace: https://bright.uvic.ca/d2l/le/discovery/view/course/132610

## Code of Conduct:

All staff and students are responsible for adhering to a code of conduct, including academic integrity. The University of Victoria is committed to promoting critical academic discourse while providing a respectful and supportive learning environment. All members of the university community have the right to this experience and the responsibility to help create such an environment.
Please be advised that, by logging into UVic's learning systems or interacting with online resources, and course-related communication platforms, you are engaging in a university activity. All interactions within this environment are subject to the university expectations and policies. Any concerns about student conduct may be reviewed and responded to in accordance with the appropriate university policy.

## Copyright statement:

All course content and materials are made available by instructors for educational purposes and for the exclusive use of students registered in their class. The material is protected under copyright law, even if not marked with a ©. Any further use or distribution of materials to others requires the written permission of the instructor, except under fair dealing or another exception in the Copyright Act. Violations may result in disciplinary action under the Resolution of Non-Academic Misconduct Allegations policy (AC1300). Students may not distribute lecture notes or any exams or quizzes from the course without permission of the instructor, and to do so, through note-sharing sites or other means, violates the Policy on Academic Integrity.

## 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), A (85-89), A- (80-84), B+ (77-79), B (73-76), B- (70-72), C+ (65-69), C (60-64), D (50-59), F (0-49)

**BIOL 355 Tentative Lecture Schedule**

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|---|---|
| Mon. Jan. 6 | 1. Introduction |
| Thu. Jan. 9 | 2. Adaptation & Genetic variation |
| Mon. Jan. 13 | 3. Genetic variation |
| Thu. Jan. 16 | 4. Mutation |
| Mon. Jan. 20 | 5. Mutation |
| Thu. Jan. 23 | 6. Selection |
| Mon. Jan. 27 | 7. Selection |
| Thu. Jan. 30 | 8. Selection |
| Mon. Feb. 3 | 9. Selection & Genetic drift |
| Thu. Feb. 6 | **Midterm 1** |
| Mon. Feb. 10 | 10. Genetic drift & Genetic structure |
| Thu. Feb. 13 | 11. Molecular evolution |
| Feb. 17 – 21 | Reading Week |
| Mon. Feb. 24 | 12. Speciation |
| Thu. Feb. 27 | 13. Sex and recombination |
| Mon. Mar. 3 | 14. Recombination |
| Thu. Mar. 6 | 15. Sexual selection |
| Mon. Mar. 10 | 16. Sexual selection & coevolution |
| Thu. Mar. 13 | **Midterm 2** |
| Mon. Mar. 17 | 17. Phylogenetics |
| Thu. Mar. 20 | 18. Prokaryotes |
| Mon. Mar. 24 | 19. Eukaryotes |
| Thu. Mar. 27 | 20. Mitochondria |
| Mon. Mar. 31 | 21. Symbiosis |
| Thu. Apr. 3 | 22. TBA |