

COURSE OUTLINE

Molecular Evolution – 20421 – Biology 435 – A01 Second Term, Jan-Apr 2021

TABLE OF CONTENTS

	page
Contact information and course description	2
Copyright statement	2
Grade distribution and important dates	3
Academic integrity	4
Lecture schedule	5
Resources and support	6
Course experience survey	6

Molecular Evolution – 20421 – Biology 435 – A01

Instructor:

Steve Perlman

Email: stevep@uvic.ca

Office hours: by appointment

When and where:

Lectures: Mondays and Thursdays, 11:30 am-12:50 pm via Zoom (find link on Brightspace page)

Course description:

Molecular evolution is an exciting and rapidly developing field of study that is especially concerned with a) understanding how and why DNA sequences and genomes change, and b) reconstructing the evolutionary history of genes, genomes, and organisms. This course will cover a broad array of current topics in molecular evolution, spanning population genetics, phylogenetics, and genomics. The first portion of the course will provide an introduction to molecular population genetics and phylogenetics. The second portion will survey current topics and recent primary literature. There will be one mid-term, one final exam, one student presentation, one paper critique, two short quizzes, and computer exercises using population genetic, phylogenetic, and bioinformatics software. Details on the assignments will be provided in the lectures.

Textbook:

There is no required text. There will be required readings consisting of journal articles (uploaded onto Brightspace).

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.

Grade Distribution and Important Dates:

Midterm test (Thur. Feb. 11)	20%
Final (exam period, TBA)	25%
Check-in quiz (week of Feb. 1)	2.5%
Check-in quiz (week of Mar. 8)	2.5%
Group Presentation	25%
Video feedback of 1 group presentation	3%
Paper critique (Mon. Apr. 12)	10%
Computer exercises (Mon. Mar. 1)	12%

Penalty for late submissions: 5% per day.

Missed Tests – If you miss (or know beforehand that you will be missing) a test because of illness, accident, family affliction, or commitments as a UVic athlete, you are required to contact the appropriate instructor in a timely manner after the test (within ten calendar days). Except in the case of a missed final exam, all paperwork and any special arrangements for an absence must be completed by the last day of classes.

Students are reminded that final exams in the Faculty of Science run from April 15 through April 27. 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 the Biology department does not offer supplemental final exams.

Note these important dates:

Last day for 100% reduction of tuition fees for standard courses – Tue. Jan. 19 (under review)

Last day for adding first term courses – Fri. Jan 22 (under review)

Last day for 50% reduction of tuition fees for standard courses – Tue. Feb. 9 (under review)

Last day for withdrawing from 2nd term courses without penalty of failure – Sun. Feb. 28

The convention used for assigning letter grades is as follows:

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)

Please be sure to consult the UVic calendar for more information on UVic policies and procedures:

<https://www.uvic.ca/calendar/future/undergrad/index.php#/home>

An important message from your instructor on 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.

It is absolutely essential that you understand and uphold academic integrity. To this end, I ask you to please read UVic's framework on academic integrity, which you can find here:

<https://www.uvic.ca/students/academics/academic-integrity/index.php>

You can also find UVic's Policy on Academic Integrity in the UVic calendar:

https://www.uvic.ca/calendar/undergrad/index.php#/policy/Sk_0xsM_V

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

I reserve the right to use plagiarism detection software or other platforms to assess the integrity of student work.

BIOL 435 Tentative Lecture Schedule

Mon. Jan. 11	1. Introduction & genetic variation
Thu. Jan. 14	2. Population genetics: Genetic variation
Mon. Jan. 18	3. Population genetics: Genetic variation
Thu. Jan. 21	4. Population genetics: Mutation
Mon. Jan. 25	5. Population genetics: Selection
Thu. Jan. 28	6. Population genetics: Genetic drift
Mon. Feb. 1	7. Population genetics: Population structure
Thu. Feb. 4	8. Molecular population genetics I
Mon. Feb. 8	9. Molecular population genetics II
Thu. Feb. 11	**Midterm**
Feb. 15 – 19	Reading Week
Mon. Feb. 22	10. Wrapping up Population genetics
Thu. Feb. 25	11. Phylogenetics
Mon. Mar. 1	12. Tree of life
Thu. Mar. 4	13. Prokaryote genomes
Mon. Mar. 8	14. Eukaryote genomes
Thu. Mar. 11	15. Transposable and other selfish genetic elements
Mon. Mar. 15	16. Evolution of new genes and functions I
Thu. Mar. 18	17. Evolution of new genes and functions II: gene duplication
Mon. Mar. 22	18. Rapidly evolving genes and adaptation
Thu. Mar. 25	19. Sex chromosomes
Mon. Mar. 29	20. Mitochondria and small genomes
Thu. Apr. 1	21. Speciation
Mon. Apr. 5	Easter Monday
Thu. Apr. 8	22. TBA
Mon. Apr. 12	23. TBA

Student resources and support:

A note to remind you to take care of yourself:

Do your best to maintain a healthy lifestyle this semester by eating well, exercising, getting enough sleep and taking some time to relax. This will help you achieve your goals and cope with stress. All of us benefit from support during times of struggle. You are not alone. Here are some resources that are available to you:

- **UVic Support Connect** - *In addition to providing both face to face and online mental health resources through our new Student Wellness Centre (opened in July), a new 24x7 phone & online student mental health resource and support program is now available for all UVic students, no matter where they are located, at any time. This program is called UVic Support Connect.*

<https://www.uvic.ca/services/counselling/resources/supportconnect/>

- **Counselling Services** - *Counselling Services can help you make the most of your university experience. They offer free professional, confidential, inclusive support to currently registered UVic students.* <https://www.uvic.ca/services/counselling/>

- **Health Services** - *University Health Services (UHS) provides a full service primary health clinic for students, and coordinates healthy student and campus initiatives.* <http://www.uvic.ca/services/health/>

- **Centre for Accessible Learning** - *The CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations* <https://www.uvic.ca/services/cal/>. *The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.*

- **Elders' Voices** - *The Office of Indigenous Academic and Community Engagement (IACE) has the privilege of assembling a group of Elders from local communities to guide students, staff, faculty and administration in Indigenous ways of knowing and being.* <https://www.uvic.ca/services/indigenous/students/programming/elders/index.php>

- **New Student Connect Program** - *As a critical tool to build student communities and meaningful engagement outside of the learning setting in a predominately online environment, all **new to UVic** students (undergraduate & graduate) will have opportunities to participate in New Student Connect.*

<https://www.uvic.ca/services/studentlife/initiatives/new-student-connect/index.php>

Course Experience Survey (CES):

I value your feedback on this course. Towards the end of term you will have the opportunity to complete a confidential course experience survey (CES) regarding your learning experience. The survey is vital to providing feedback to me regarding the course and my teaching, as well as to help the department improve the overall program for students in the future. When it is time for you to complete the survey, you will receive an email inviting you to do so. If you do not receive an email invitation, you can go directly to <http://ces.uvic.ca>. You will need to use your UVic NetLink ID to access the survey, which can be done on your laptop, tablet or mobile device.