Molecular Evolution – 20365 – Biology 435 – A01 **January 2017**

Instructor:
Steve Perlman
Cunningham 160F (enter through Cunn 160D)
Phone: 721-6319
Email: stevep@uvic.ca
Office hours: Thurs 10-11 or by appointment

When and where:
Lectures: Thursdays and Thursdays, 11:30-12:50, Cunningham 146

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 exam, one final exam, one student presentation, one final paper, and computer exercises using population genetic, phylogenetic, and bioinformatics software. Details on the assignments will be provided in the lectures.

Textbook:
We will be using Dan Graur's new (2016!) Molecular and Genome Evolution (Sinauer). There will also be required readings consisting of journal articles (uploaded onto Course Spaces).

Grade Distribution and Important Dates:

Mid-term exam (Thu. Feb. 9)	20%
Final exam (exam period, TBA)	25%
Presentation	20%
Outline for final paper (due Mon. Feb. 20)	5%
Final Paper (due Mon. Apr. 3)	25%
Computer exercises (due Thu. Mar. 2)	5%

Penalty for late submission of assignments: 5% per day.

Note these important dates:
Last day for adding first term courses – Fri. Jan 20
Last day for withdrawing from first-term courses without penalty of failure – Tue. Feb 28

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). You are required to provide supporting documentation (example: a doctor's note,

etc.) Documentation for such an absence will not normally be accepted beyond the ten calendar days and will result in a mark of zero. 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 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 the Biology department does not offer supplemental final exams.

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)

Academic Integrity and Preventing Plagiarism and Cheating - Academic integrity matters are governed by UVic's Policy on Academic Integrity. Please read this policy: http://web.uvic.ca/calendar2016-09/undergrad/info/regulations/academic-integrity.html

Please read this useful resource for avoiding cheating and plagiarism: UVic Libraries' plagiarism guide: http://library.uvic.ca/instruction/cite/plagiarism.html

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.

TENTATIVE LECTURE SCHEDULE

1	Thurs. Jan. 5	Introduction & genetic variation
2	Mon. Jan. 9	Population genetics: Genetic variation
3	Thurs. Jan. 12	Population genetics: Mutation
4	Mon. Jan. 16	Population genetics: Selection
5	Thurs. Jan. 19	Population genetics: Genetic drift
6	Mon. Jan. 23	Population genetics: Population structure
7	Thurs. Jan. 26	Molecular population genetics I
8	Mon. Jan. 30	Molecular population genetics II
9	Thurs. Feb. 2	Wrapping up Population genetics
10	Mon. Feb. 6	Phylogenetics I
11	Thurs. Feb. 9	**Midterm**
	Feb. 13 – 16	**Reading Week**
12	Mon. Feb. 20	Phylogenetics II
13	Thurs. Feb. 23	Tree of life
14	Mon. Feb. 27	Prokaryote genomes
15	Thurs. Mar. 2	Eukaryote genomes
16	Mon. Mar. 6	Transposable and other selfish genetic elements
17	Thurs. Mar. 9	Evolution of new genes and functions I
18	Mon. Mar. 13	Evolution of new genes and functions II: gene duplication
19	Thurs. Mar. 16	Rapidly evolving genes
20	Mon. Mar. 20	Sex chromosomes
21	Thurs. Mar. 23	Mitochondria and small genomes
22	Mon. Mar. 27	Human population genetics and molecular evolution
23	Thurs. Mar. 30	Speciation
24	Mon. Apr. 3	TBA