

Biology 3466b – Evolutionary Genetics - Syllabus – 2017

A basic overview of the genetics of evolutionary processes. The emphasis will be on the formulation of simple mathematical models used to predict inheritance and gene frequency changes in evolving populations.

Schedule:

Lectures	Monday	12:30	Biology & Geology 0153
	Thursday	11:30	Biology & Geology 0153
Laboratory	Tuesday	13:30	Somerville House 1310
	Wednesday	14:30	Somerville House 1310

Format:

Lectures will follow a traditional style of presentation, with student participation expected. Laboratories will be computer-based with a printed one-page report for each exercise. Test/Final: multiple choice.

Evaluation:	Mid-term	25%	Thursday February 16, 11:30, in class
	Final	45%	Final exam period (TBA)
	Lab assignments* and pop quizzes	30%	

Course notes and laboratory assignments available from the UWO Bookstore at cost.

Optional text: Halliburton - Introduction to Population Genetics (2004) Pearson/Prentice Hall

Software: Microsoft Excel is provided in the computer lab

Instructor: MA Lachance, Professor of Biology, 2036 BGS, 661-3752 - lachance@uwo.ca

Lecture topics

Introduction, course format	Selection	Wahlund effect
Historical aspects:	Fitness	Linkage disequilibrium
Pangensis, Darwinism,	Selection regimes	The Neutral Theory
Darwinians, Mendelians,	The levels of selection	Genetic basis for continuous traits
Lamarckians	Mutation	Polygenic inheritance
The synthetic theory	Molecular basis	Genetic variance
Genetic variation	Balance with selection	Heritability
What kinds?	Genetic load	Realized
How much?	Migration	Broad-sense
Maintenance of variation	Drift and sampling error	Narrow-sense
The Hardy-Weinberg model	Non-random mating	Variation in real metric traits
and deviations from it	Inbreeding	
	Wright's statistics	

*Lab assignments are due at the end of each exercise. A final extension is granted till 12:30 pm the following Monday. A verbal explanation must be provided to be excused of missed lab assignments. For other assignments, please consult the policy statement at <https://studentservices.uwo.ca/secure/index.cfm>. The use of portable electronic devices of any sort is prohibited during all course activities except by instructor approval. Scholastic offenses are taken seriously; students are directed to read the policy - see link on course website. Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation. The web site also has a link on the subject of mental health and the relevant services offered by the university.