

## Biology 3466b – Evolutionary Genetics - Syllabus – 2018

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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.

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### Schedule:

Lectures	Monday	12:30	Biology & Geology 0165
	Thursday	11:30	Biology & Geology 0153
Laboratory	Tuesday	13:30	Health Sciences Building 16
	Wednesday	14:30	North Campus Building 105

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### 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.

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<b>Evaluation:</b>	Mid-term	25%	Thursday February 15, 11:30, in class
	Final	45%	Final exam period (TBA)
	Lab assignments* and pop quizzes	30%	

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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

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

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### 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
Lamarckians	Mutation	traits
The synthetic theory	Molecular basis	Polygenic inheritance
Genetic variation	Balance with selection	Genetic variance
What kinds?	Genetic load	Heritability
How much?	Migration	Realized
Maintenance of variation	Drift and sampling error	Broad-sense
The Hardy-Weinberg model	Non-random mating	Narrow-sense
and deviations from it	Inbreeding	Variation in real metric
	Wright's statistics	traits

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\*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.