

# APPLIED ECOLOGICAL GENETICS

## BIOL 4008-7

**Instructor:** Dr. Daniel Heath; GLIER Rm 241  
E-mail: [dheath@uwindsor.ca](mailto:dheath@uwindsor.ca)

**Office Hours (on Blackboard only):**  
Tuesday: 1:00AM - 2:00PM  
Thursday: 1:00PM - 2:00PM  
Or by appointment

**Teaching Assistants:** Javad Sadeghi; Keta Patel

**Course Materials:**  
Textbook: "A *Primer of Ecological Genetics*" by Conner & Hartl

**Lecture Times & Venue**  
Tues & Thurs 10:00-11:20AM Blackboard Virtual Classroom until (Feb 1)  
When we return to in-person learning, classes will be held in Dillon Hall 350  
- you will be provided with an assigned seat in our classroom

**Tutorial Times & Venue**  
Wed. 10:00AM - 11:00AM on Blackboard Virtual Classroom only  
- note: Tutorials will be scheduled with notice

**Grading:**

Assignments (3 @ 8% each)	24%
In-class evaluations	6%
Midterm Tests (3 @ 10% each) (Feb 10; Mar 15; Apr 7)	30%
Project/Presentations	20%
Final Exam (TBA)	<u>20%</u>
<b>TOTAL</b>	<b>100%</b>

### ACADEMIC REQUIREMENTS:

- 1) Students are required to attend all in-person and virtual classes on time.
- 2) No student will knowingly communicate answers or information from any graded material to another student without permission from the instructor
- 3) If you miss one term test with appropriate illness reporting (see [http://ask.uwindsor.ca/app/answers/detail/a\\_id/577](http://ask.uwindsor.ca/app/answers/detail/a_id/577)), your grade will be pro-rated based on the completed term tests and your final exam grade. If you miss two (or more) term tests, you will be required to take make-up tests at the end of classes. You must complete the Final Exam.

- 4) Plagiarism and Academic Dishonesty: Plagiarism and other forms of Academic Dishonesty **will not be tolerated** (see below) and all instances will be reported to the Associate Dean of Science for disciplinary action under Senate Bylaw 31: Student Affairs and Integrity. Since tests/exams in this course are protected by copyright, reproduction or dissemination of their contents or format is strictly prohibited. Students who violate this rule or engage in any other form of academic dishonesty will be subject to disciplinary action. This applies to both the lecture and lab components of the course. See detailed Academic Integrity information below.
- 5) The Student Evaluation of Teaching (SET) will be administered during the last two weeks of course lectures.

#### **ACADEMIC INTEGRITY:**

**Code:** *“Students of the University of Windsor pursue all endeavours with honour and integrity, and will not tolerate or engage in academic or personal dishonesty”*

**Pledge:** *“As a student of the University of Windsor, I pledge to pursue all endeavours with honour and integrity, and will not tolerate or engage in academic or personal dishonesty”*

**Description:** As defined in the Windsor Student Code of Conduct and Senate Bylaw 31 on Academic Integrity, this pledge covers but is not limited to cheating, plagiarizing or misrepresenting the ideas of someone else, unauthorized assistance/collaboration, and falsifying data.

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## Course outline

This course will consist of three modules:

- 1) Ecological Genetics (e.g., population genetics, conservation genetics, invasion genetics, behavioural applications)
- 2) Evolutionary Genetics (e.g., quantitative genetics, QTLs, GWAS, trait mapping, epigenetic inheritance)
- 3) Environmental Genetics (environmental DNA, metabarcoding, metagenomics, metatranscriptomics, aquatic community assessment)

Each module will start with lecture material, followed by in-class problem solving and an assignment. Each module will have a midterm test.

Throughout the semester we will discuss, plan and design the final Applied Genetics project to be completed as a class project, likely using high throughput (Next Generation) sequencing or related technologies. Students will work in teams to complete aspects of the project and provide updates to the instructor and class; however, each student will generate a manuscript, although collaborative manuscripts are encouraged.

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