

**University of Guelph
College of Biological Science
Department of Integrative Biology**

**COURSE OUTLINE
Evolution, BIOL*2400
Winter 2017**

NOTE: This outline is preliminary and subject to change until the first class day.

Course description

This course provides a broad overview of evolutionary biology. It examines the concepts and mechanisms that explain evolutionary change and the evolution of biological diversity at different levels of biological organization (gene to ecosystem) and across space and time. It also introduces historical forms of scientific inquiry, unique to biology. The course is designed to be of interest to students with general interests in science and in research in all areas of biology.

Prerequisite(s): BIOL*1070, BIOL*1090
Restriction(s): BIOL*3400

Teaching team

Professor: Dr. Teresa Crease, Office – SSC 1455, tcrease@uoguelph.ca, x52723. Office hours by appointment.

Teaching Assistant: TBA

Course schedule

Lectures: 12.30 to 1.20 PM Monday, Wednesday, Friday, ROZH 103

Review sessions may be scheduled as required when large classrooms are available.

Learning outcomes

By the end of the course students will understand the major theories and hypotheses that have been proposed to explain the generation of biodiversity at all levels of biological organization and methods that can be used to test them.

After completing this course, students should be able to:

1. Accurately define and describe terms and concepts such as evolution, adaptation and fitness.
2. Explain basic mechanisms of evolutionary change at the genetic, molecular and phenotypic levels.

3. Identify, differentiate, analyze and give examples of processes such as sexual selection, multi-level selection, life-history evolution, and co-evolution.
4. Identify species concepts and explain common mechanisms of speciation.
5. Explain simple methods of phylogenetic tree estimation and interpretation, estimate a phylogenetic tree and apply the comparative method to explain character evolution.
6. Develop familiarity with model building and hypothesis testing.
7. Comprehend and criticize scientific and popular material on Evolution.
8. Acquire, filter, and synthesize scientific concepts, facts and methods.

Course resources

Lectures: The purpose of lectures is to support students in their learning of fundamental topics, concepts and methods in evolutionary biology. Students will be expected to supplement their learning through readings from the course textbook and the primary literature as indicated by the instructor. Students will be advised in advance if they are expected to complete any readings prior to lecture.

Readings: Textbook and primary literature readings are assigned. The textbook for the course is *Evolution: Making Sense of Life* (2nd edition) by C. Zimmer and D. Emlen (ISBN: 9781936221554). The text is on reserve in the main library or available for purchase at the bookstore. Assigned readings from the primary literature will be indicated in assignments or lecture.

Courselink: Lecture notes, assignments and other course materials will be posted on the Courselink site. Using the discussion tool, students will have the opportunity to ask the Professor about course material, and to communicate with other students in the course.

Course content

General topics covered in the course are listed below. Readings refer to relevant sections of the course textbook, *Evolution: Making Sense of Life* (2nd edition) by C. Zimmer and D. Emlen.

No.	Topics	Readings
1	Darwin's great ideas	Chapters 1, 2
2	History of life and the evolution of complexity	Chapter 3
3	Phylogenies	Chapter 4
4	The Modern Synthesis	Chapter 5
5	The genetic basis of evolutionary change – Population genetics	Chapter 6
6	Evolution in action – quantitative genetics	Chapters 7, 8
7	Sexual selection	Chapter 11
8	Life history evolution	Chapter 12

No.	Topics	Readings
9	Speciation	Chapter 13
10	Diversification and extinction - Macroevolution	Chapter 14
11	Multi-level selection	Chapter 16
12	Human evolution	Chapter 17

Note: You can be tested on material in assigned readings from the text even if the material is not covered in lecture. Any supplementary readings assigned during lectures will be available under the course number at the reserve desk in the library or on Courselink.

Methods of assessment

Form of assessment	Value (%)	Date	Course content/ Activity	Learning Outcome addressed
Assignment 1	8.3 or 0*	Feb. 3	lecture, readings	TBA
Assignment 2	8.3 or 0*	Feb. 17	lecture, readings	TBA
Assignment 3	8.3 or 0*	Mar. 10	lecture, readings	TBA
Assignment 4	8.3 or 0*	Mar. 24	lecture, readings	TBA
Midterm exam 1	15 or 25**	Feb. 10	lecture, readings	all learning outcomes
Midterm exam 2	15 or 25**	Mar. 17	lecture, readings	all learning outcomes
Final exam	35	TBD	all course material	all learning outcomes

Grades will be assigned according to the standards outlined in the Undergraduate Calendar in section VIII. Undergraduate degree regulations and procedures/Grades/[Grading system](#)

Assignments: There will be four assignments during the semester. These assignments will sometimes involve reflection, discussion, calculation or assessment of scientific papers. The subject matter of the assignments will be based on the relevant assigned readings, and lecture material. Assignments will be posted on Courselink one week prior to the due date. Assignments must be uploaded to Dropbox on Courselink by 11:59 PM on the due date. Late assignments will be given a grade of zero (0). Assignments must be submitted in PDF format. If a student is not able to submit an assignment on time, an extension may be granted if requested **at least 1 day before the due date**. Otherwise, late assignments will be assigned a mark of zero (0).

***Note:** Only the best 3 of the 4 assignments will contribute to the final mark. Each of the 3 assignments will contribute 8.3% of the final mark for a total of 25%.

Midterm exams: There will be two midterm exams during the semester. Both exams will be taken in class during the regular lecture period for that day. Since the material presented in the class will be integrated, all tests will be comprehensive.

****Note:** The test with the lower mark will contribute 15% to the final mark, and the test with the higher mark will be contribute 25% to the final mark.

Make-up midterm exams will not be given. If a student fails to write a midterm exam, a request for academic consideration with supporting documentation must be submitted to the instructor. If approved, the other midterm exam will be weighted at 20% and the final exam will be weighted at 55%. Students must write at least 1 midterm exam to pass the course.

Final exam: The final exam will cover all material from the course and will take place during the regular examination period. If a student misses the final exam, a request for academic consideration including documentation must be submitted to the Program Counsellor within 5 working days of the missed exam.

Important dates

Date	Event	Location
January 9	First class	ROZH 103
February 3	Assignment 1 due	Courselink Dropbox by 11:59 PM
February 10	Midterm exam 1	in class - ROZH 103
February 17	Assignment 2 due	Courselink Dropbox by 11:59 PM
March 10	Assignment 3 due	Courselink Dropbox by 11:59 PM
March 10	40 th class day	last day to drop 1-semester courses
March 17	Midterm exam 2	in class - ROZH 103
March 24	Assignment 4 due	Courselink Dropbox by 11:59 PM
TBA	Final exam	TBA

Course and University policies

When you cannot meet a course requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing or by email and include your name, ID#, email contact and supporting documentation. See the undergraduate calendar for information on regulations and procedures for [Academic Consideration](#).

A request for academic consideration is not required for the first missed assignment as only the best 3 of 4 assignments will contribute to the final mark. If a student is not able to submit an assignment on time, an extension may be granted if requested **at least 1 day before the due date**. Otherwise, late assignments will be assigned a mark of zero (0).

Make-up midterm exams will not be given. If a student fails to write a midterm exam, a request for academic consideration with supporting documentation must be submitted to the instructor. If approved, the other midterm exam will be weighted at 20% and the final exam will be weighted at 55%. Students must write at least 1 midterm exam to pass the course.

If a student misses the final exam, a request for academic consideration including documentation must be submitted to the Program Counsellor within 5 working days of the missed exam.

Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact Student Accessibility Services (formerly the Centre for Students with Disabilities) as soon as possible.

For more information, contact [Student Accessibility Services](#) at 519-824-4120 ext. 56208 or email csd@uoguelph.ca.

Academic misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The [Academic Misconduct Policy](#) is detailed in the Undergraduate Calendar.

Email communication

As per university regulations, all students are required to check their <uoguelph.ca> email account regularly: email is the official route of communication between the University and its students.

Drop Date

The last date to drop one-semester courses, without academic penalty, is the 40th class day. To confirm the actual date please see the schedule of dates in the Undergraduate Calendar. For regulations and procedures for Dropping Courses, see the [Undergraduate Calendar](#).

Copies of out-of-class assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Recording of materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Missed lectures

If you are absent from classes during the semester, you will be expected to make up missed lecture material on your own.

If you are concerned about any aspect of your academic program:

Make an appointment with a Program Counsellor in your degree program.

If you are struggling with personal or health issues:

[Counselling services](#) offers individualized appointments to help students work through personal struggles that may be impacting their academic performance.

[Student Health Services](#) is located on campus and is available to provide medical attention.

For support related to stress and anxiety, besides Health Services and Counselling Services, [Kathy Somers](#) runs training workshops and one-on-one sessions related to stress management and high performance situations.

If you have a documented disability or think you may have a disability:

[Student Accessibility Services \(SAS\)](#) formerly Centre for Students with Disabilities can provide services and support for students with a documented learning or physical disability. They can also provide information about how to be tested for a learning disability.