



IBIO*6020 Special Topics in Evolutionary Biology

Winter 2020

Section(s): C01

Department of Integrative Biology

Credit Weight: 0.50

Version 1.00 - November 21, 2019

1 Course Details

1.1 Calendar Description

This modular course reviews books and/or other publications in the field of evolutionary biology, providing knowledge of progress in this area of biology. Topics may include epigenetics, phylogenetics, developmental basis of evolutionary change, and molecular evolution. The course includes lectures and seminars in which the students participate. Offered annually.

1.2 Course Description

A major goal in evolutionary biology is to understand how phenotypic variation arises and is sorted by natural selection. During the Winter 2020 offering, we will examine a recently developed conceptual model that combines ecological (eco), evolutionary (evo) and developmental (devo) processes to gain better insight on the emergence and role of biological diversity (Skulason et al. 2019, *Biological Reviews* 94: 1786-1808). This eco evo devo model posits that the environment simultaneously determines the development of the phenotype and the nature of the selective environment and that organisms in turn affect the environment through eco evo and eco devo feedbacks. In this course we will explore the potential interactions and pathways within the eco evo devo model and evaluate how such integrated thinking can be used to solve particular evolutionary problems.

1.3 Timetable

An organizational meeting will be announced prior to the first week of classes. At that meeting we will identify a regular meeting time for 2-3 h each week.

1.4 Final Exam

This class does not have a final exam.

2 Instructional Support

2.1 Instructional Support Team

Instructor:	Moira Ferguson
Email:	mmfergus@uoguelph.ca
Telephone:	+1-519-824-4120 x52726
Office:	SC1E 1457
Office Hours:	By appointment

3 Learning Resources

There is no required reference text. All presentations and discussions be based on articles from the primary literature

3.1 Required Resources

Posted on Courselink (Readings)

4 Learning Outcomes

4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. Learning outcomes

1. Understand a conceptual model of how ecological (eco), evolutionary (evo) and developmental (devo) processes interact to generate and alter biological diversity;
 2. Interact with peers to examine evolutionary problems from multiple perspectives;
 3. Critically evaluate how consideration of the interacting pathways in the eco evo and devo model can be used to solve a particular evolutionary problem through case study analysis;
 4. Present a summary of a case study and lead a discussion;
 5. Synthesize perspectives from the literature and class discussion in a final written analysis of how successful eco evo devo integration has been in solving an evolutionary problem.
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5 Teaching and Learning Activities

5.1 Seminar

Topics:

Week 1. Organizational meeting to refine goals and structure of the course based on the interests of students involved

Week 2. Group analysis and discussion of the conceptual model exploring the interactions among ecological, evolutionary and developmental processes.

Weeks 3-5. Case studies: presentation and discussion of key interactions and pathways with the eco evo devo framework; critically evaluate extent of integration in light of conceptual model.

Week 6. No class

Reading Week (February 17-21). No class

Week 7-9. Case studies: presentation and discussion of key interactions and pathways with the eco evo devo framework; critically evaluate extent of integration in light of conceptual model.

Week 10. Work on Draft

Week 11. Feedback on first draft

Week 12. Work on final draft.

6 Assessments

6.1 Marking Schemes & Distributions

Item	%	Due
1. Preparation and contributions to group discussions	20	Weeks 3-5 and 7-9 when not presenting
2. Oral presentation of a key interaction and pathway within the eco evo devo framework for evolutionary case	20	Once during Weeks 3-5 and 7-9
3. Lead group discussion for evolutionary case	15	Once during Weeks 3-5 and 7-9
4. Peer review of first draft	10	Week 11
5. Final draft	35	Week 12

7 Department of Integrative Biology Statements

7.1 Academic Advisors

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

- Make an appointment with a program counsellor in your degree program. [B.Sc. Academic Advising](#) or [Program Counsellors](#)

7.2 Academic Support

If you are struggling to succeed academically:

- Learning Commons: There are numerous academic resources offered by the Learning Commons including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills. You can also set up individualized appointments with a learning specialist. <http://www.learningcommons.uoguelph.ca/>
- Science Commons: Located in the library, the Science Commons provides support for physics, mathematic/statistics, and chemistry. Details on their hours of operations can be found at: <http://www.lib.uoguelph.ca/get-assistance/studying/chemistry-physics-help> and <http://www.lib.uoguelph.ca/get-assistance/studying/math-stats-help>

7.3 Wellness

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. <https://www.uoguelph.ca/counselling/>
- Student Health Services is located on campus and is available to provide medical attention. <https://www.uoguelph.ca/studenthealthservices/clinic>
- 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. <http://www.selfregulationskills.ca/>

8 University Statements

8.1 Email Communication

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

8.2 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 (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Graduate Calendar - Grounds for Academic Consideration

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions

<https://www.uoguelph.ca/registrar/calendars/diploma/current/index.shtml>

8.3 Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

Graduate Calendar - Registration Changes

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml>

Associate Diploma Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml>

8.4 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.

8.5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance and not later than the 40th Class Day.

For Guelph students, information can be found on the SAS website

<https://www.uoguelph.ca/sas>

For Ridgetown students, information can be found on the Ridgetown SAS website
<https://www.ridgetownc.com/services/accessibilityservices.cfm>

8.6 Academic Integrity

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 encourages academic integrity. 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.

Undergraduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Graduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

8.7 Recording of Materials

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

8.8 Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars

<https://www.uoguelph.ca/academics/calendars>