

**Faculty of Science Course Syllabus Fall 2021****Department of Biology**

BIOL 2040.03

Evolution

Fall 2021

**Instructors:**

Lecturers:

**Dr. Robert Latta (he/him)**[Robert.Latta@dal.ca](mailto:Robert.Latta@dal.ca)

LSC 7076 B Office Hours\* TBA and by appointment

**Dr. Mark Johnston (he/him)**[Mark.Johnston@dal.ca](mailto:Mark.Johnston@dal.ca)

LSC 7132 Office Hours TBA and by appointment

Labs/Coordination:

**Dr. Jen Frail-Gauthier (she/her)**[jfrail@dal.ca](mailto:jfrail@dal.ca)

LSC 3130 Office Hours: online by appointment and during lab times

*\*Office Hours = these are when the instructors are available to talk with you about course material or other course-related concerns/questions you may have.*

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*Dalhousie University is located in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq. We are all Treaty people. We also acknowledge the histories, contributions, and legacies of the African Nova Scotian people and communities who have been here for over 400 years.*

*The Evolution Teaching Team supports an open, respectful, and safe learning environment for all students. We respect and encourage equity, diversity, inclusion, and accessibility.*

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**Course delivery:** BIOL 2040 will be **in-person**, unless otherwise directed by health and safety at Dalhousie University (following COVID protocols set out by the Government of Nova Scotia and the Chief Medical Officer of Health). We **strongly** encourage and recommend that you wear masks when participating in in-person activities (lectures, labs, office hours) and continue to follow good public health practices such as washing hands frequently.

**\*NOTE: What to do if you feel sick.** Students experiencing COVID-19 symptoms should follow public health guidelines as outlined at <https://novascotia.ca/coronavirus/symptoms-and-testing/>. These public health guidelines list the common symptoms of COVID-19 and advise that if you experience these symptoms, you should get a test, and that you should self-isolate until your test comes back negative. This requires you to stay at home and avoid school, work, etc. To accommodate any students who may need to self-isolate, we are making lecture videos from last year's online offering available on Brightspace, and we will be following those lectures closely during the in-person classes

**Lectures:** Lectures are held in the Dunn building, room 117, on Tuesdays and Thursdays from 10:05 - 11:25 am.

**Laboratories:** Students are required to attend a **two-hour lab every week** (nine labs in total).

The labs are held in the LSC Room 4012 during the following days and times:

B01	Tuesday	1135-1325	B03	Wednesday	1235-1425	B05	Thursday	1235-1425
B02	Tuesday	1435-1625	B04	Wednesday	1535-1725	B06	Thursday	1535-1725

## Course Description

A thorough overview of the process of evolution. Genetic variation and changes in genetic composition of populations, the relationship between genetic and phenotypic change. Adaptation at various levels of organization (DNA to species), speciation, phylogeny, and macroevolutionary patterns. Introduces the full breadth of evolutionary concepts, preparatory to more advanced courses.

## Course Prerequisites

A grade of C or higher in BIOL 1010.03 or BIOL 1020.03 or BIOL 1031.03 or BIOA 1002.03 and BIOA 1003.03, or SCIE 1506.09 and SCIE 1507.09, or equivalent. **Recommended:** SCIE 1111.03 Writing for the Sciences

## Learning Objectives

What is expected\* of students coming into the course and course student learning outcomes can be found at this link: <https://biology.academics.cs.dal.ca/daedalus/browse/course>.

*\*we understand that for many students, learning outcomes of first-year courses were modified due to online delivery in 2020-2021, therefore, many expected hands-on skills may be new to BIOL 2040 students.*

## Course Materials

NOTE: There are also copies of the textbooks for you to borrow for a short period of time in the Killam Library.

- 1) Herron J, Freeman S. 2014. Evolutionary Analysis. 5<sup>th</sup> ed. Glenview (IL): Pearson Education. 850 p. **NOTE: This can be purchased (reduced price compared to hardcover book) through the Brightspace page (through Willo)**
- 2) Knisely, K. 2017 A Student Handbook for Writing in Biology. 5<sup>th</sup> ed. Sunderland (MA): Sinauer Associates. 288 p. (NOTE; this is also required for other Biology courses).
- 3) **Electronic** (Brightspace): the lab activities, pre-lab materials, and assignments

**Course Assessment**

The marks will be assigned as follows:

Midterm	25 % (90 mins; online; Oct 19 <sup>th</sup> )
Labs	30 % (throughout the term; see schedule)
Final Exam	45% (3 hours, during final exam period)

**Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale**

A+ (90-100)	B+ (77-79)	C+ (65-69)	D	(50-54)
A (85-89)	B (73-76)	C (60-64)	F	(<50)
A- (80-84)	B- (70-72)	C- (55-59)		

Note that numerical grades will be rounded to the nearest whole number.

**Course Policies for BIOL 2040 Evolution****ATTENDANCE GUIDELINES**

**The midterm exam** will be held online on Brightspace on the date specified in the schedule unless otherwise communicated. If you cannot write the midterm at the scheduled date, you must notify Professor Latta before the time of the midterm exam and be prepared to provide appropriate documentation that clearly explains your absence within three (3) calendar days. Permission to write a makeup midterm exam is at the discretion of the professor.

**The final exam** will be held during the formal exam period scheduled by the registrar. Students are expected to be available throughout the final exam period. If you cannot write the final exam at the scheduled date, you must notify Professors Latta and Johnston on or before the day of the exam and be prepared to provide official documentation that clearly explains your absence within three (3) calendar days. Permission to write a makeup final exam is at the discretion of the professor. You can look at the exam schedule and/or policies about final exams at [dal.ca/exams](http://dal.ca/exams).

**Laboratory attendance is mandatory.** An unexcused lab absence means you cannot hand in the assignment for that lab and will receive a grade of zero for that assignment. Accommodations will be made for students who need to miss an in-person lab due to COVID-19 regulations.

***If you must miss a lab*** due to illness, sports event, or another major event;

- Contact Jen Frail-Gauthier prior to your regular laboratory time.
- Check the lab schedule and plan to attend another lab time that week (unless excused by Jen).
- You are still responsible for the lab assignment at the usual time, extensions for lab assignments are only given at the discretion of the lab Instructor, Jen.
- In fairness for all students in the course - a busy academic workload is not a valid excuse for an assignment extension for individual students.

**LAB ASSIGNMENT GUIDELINES**

- **Pre-lab quizzes are .....worth 2 of the 30 lab marks.**
- to be completed before each new lab (see schedule).
- to be submitted by **11:30 am on Tuesdays** the week they are due.
- available on the course website for about a week. Read over the lab before you begin.
- set up for **one attempt** and **five minutes** to answer the questions and submit your quiz.
- usually reliable but, please report any difficulties to Jen well in advance of the due date to be reset.
- are best 5 of 6

➤ **When are the lab assignments due?**

Before the start of your regular lab time. Check the schedule for due dates.

➤ **Should I use a template for the assignments?**

Yes. There will be a word document template posted on the course Brightspace site under the LABS content folder. It will include the questions and any tables, so all you need to do is fill in your answers, properly format, save your file and submit the completed assignment (as a pdf) to the appropriate Dropbox on Brightspace.

➤ **In what type of file should lab assignments be submitted?**

Save the template with your completed answers **as a pdf** for submission to Brightspace. We have found that this works best. If you use another format you may be asked to resubmit your assignment before grades are recorded.

➤ **How do I know if my assignment was submitted correctly?**

Check that you get a confirmation email from Brightspace *and* check your submitted file before assuming your assignment was submitted correctly. You can submit multiple copies, but only the most recent version will be kept.

➤ **Can I still hand in an assignment after the due date and time?**

Yes, late assignments will be accepted but there are consequences. Unless given an excused extension from Jen, there is a penalty of **10% per day** including weekends. Before midnight the same day it was due is -5%.

➤ **I have most of my assignment finished but just have one question left. Can I submit what I have completed and just incur a late deduction on the late section?**

No, late deductions are based on the total value of the assignment. You may want to compare the value of the uncompleted question(s) and the value of the late deduction when choosing what to do.

➤ **Can I e-mail my assignment for grading?**

No. Submit the assignment to the course Brightspace site.

➤ **Can I skip a transfer lab?**

No. Attendance is mandatory at all labs *including* transfer labs at your scheduled lab time. An **unexcused** absence of a transfer lab will result in a 10% deduction off your final fly report.

**Plan ahead!** Save your work in several places and don't leave things to the last minute! The following are *examples* of excuses that **do not** qualify for an extension for a lab assignment:

1. Forgetting to submit the assignment
2. Submitting the wrong file
3. Studying for a midterm / completing other assignments
4. Computer crashes (unless excused by Jen!)

Please reach out to Jen throughout the course if you are having any difficulties. We are understanding that for many of you, this is a new experience. It has been a challenging year and a half, and we want to make your transition back to campus go as smoothly as possible.

### ACADEMIC INTEGRITY

Do NOT COPY or SHARE answers to any questions submitted for marks.

See the questions and answers below and also this link, [Academic Integrity](#) for more information.

**Honesty in BIOL 2040 Evolution and at Dalhousie University is highly valued. It is expected that students submit their own intellectual work to be assessed.**

**Thinking of using CHEGG or Course Hero or any other similar site?**

***Think again!***

You should know that the administrators of these sites cooperate fully with faculty at universities, providing names and information on students who post questions or look up answers. We can see when you accessed the site, what files you looked at, and what and when you posted anything. Interestingly, even if you use a fictitious name, you can be identified.

The penalty? Besides knowing you have disappointed your peers, your teachers, your family and yourself, anyone using these sites for exams this past year at Dalhousie **received an F** in the associated course and a ***note on their transcript***, and ***for those students who posted exam questions, suspension from the university.***

➤ **Since we work in groups, can we hand in the same assignments?**

No. You are encouraged to collaborate on data collection or broad general concepts with fellow students especially during the lab time. However, you must produce independent reports written in your own words that are submitted for grading.

- **Another student asks to see what I have written on an assignment. Should I give them my assignment to look at?**

Absolutely not. If that student intentionally or unintentionally copies your work, your name will go to the Academic Integrity Officer for the Faculty of Science and you can be found guilty of an academic offence. You may receive the same consequences as the person who copied your work.

**The better option** - give some general ideas on how to answer a question or send them along to the Lab Instructor or the TA, we are happy to help with any questions.

- **If, after I have completed this course, a student asks to use my assignments should I pass them along?**

No. If that student copies your work and submits it as their own, your name also goes to the Academic Integrity Officer with a charge of an academic offense. You can be found guilty and face the same consequences as the person who copied your work.

- **What if someone obtains my assignments and uses them?**

You are responsible to keep your work safe.

- **What is Urkund?**

This is a software program that Dalhousie University has adopted to detect for originality of written work. Be very careful with your answers on assignments. Your work will be submitted into Urkund when you submit your assignments. Please see [Student Submission of Assignments & Use of Originality Checking Software Policy](#)

## Tentative in-person course schedule (subject to change; COVID-19 protocols)

Date	Lecture	Read	Assignment Due	Laboratory
September 6-10	L1 Introduction and overview L2 Evidence for evolution	Ch 1 Ch. 2	.....	No Labs this week
September 13-17	L3 Mutation and variation L4 Natural selection	Ch. 5 Ch. 6	.....	<b>Evolution Escape Room!</b> <b>Lab 1(a):</b> Fly lab Practice
September 20-24	L5 Genetic drift L6 Migration	Ch. 7 Ch. 7	<b>Fly Lab:</b> Materials & Methods (1.5%)	Prelab Quiz for Lab 2 <b>Lab 2:</b> Marble Lab
September 27-Oct 1	L7 Phylogeny <b>Sept 30 – Truth and Reconciliation Day (no classes)</b>	Ch. 4	<b>Marble</b> Assignment (3.5%)	.....
<b>October 1 – exam schedule posted; last day to drop fall term courses without a “W”</b>				
October 4-8	L8 Phylogeny L9 Molecular Evol	Ch. 4 Ch. 15	<b>Fly Lab:</b> Introduction (3%)	Prelab Quiz for Lab 1 <b>Lab 1 (b):</b> Fly Lab Cultures
October 11-15	L10 Development & Evolution L 11 Origin novel characters	Ch. 19 Ch. 19		Prelab Quiz for Lab 3 <b>Lab 3:</b> Phylogeny Lab (Fly Lab: Remove adults)
October 18-22	L12 <b>MIDTERM EXAM</b> online L13 Multiple loci: why sex?	Ch. 8	.....	(Fly Lab: 1 <sup>st</sup> transfer)
October 25-29	L14 Multiple loci: why sex? Quant. Gen. L15 Multiple loci: Quant. Genetics	Ch. 8,9 Ch. 9	<b>Phylogeny Lab:</b> Assignment (3.5%)	Prelab Quiz for Lab 4 <b>Lab 4:</b> DNA Sequences Lab (Fly Lab: Remove adults)
November 1-5	L16 Quantitative Genetics L17 Studying Adaptation	Ch. 10 Ch. 10	<b>DNA Sequences:</b> Assignment (3.5%)	(Fly Lab: 2 <sup>nd</sup> Transfer)
<b>November 1 – last day to drop fall term courses with a “W”, Last day to drop X/Y courses without a “W”</b>				
November 8-12	<b>Fall Study Break ~ no classes</b>	.....	.....	<b>no labs</b> (Fly Lab: Remove adults)
November 15-19	L18 Adaptation; Sexual Selection L19 Life-history evolution	Ch. 11 Ch. 13		Prelab Quiz for Lab 5 <b>Lab 5:</b> Beetle Lab (Fly Lab: Finish, enter data)
November 22-26	L20 Life-History evolution L21 Speciation	Ch. 13 Ch. 16	<b>Beetle Lab:</b> Assignment (3.5%)	Prelab Quiz for Lab 6 <b>Lab 6:</b> Duck Lab
Nov 29- Dec 3	L22 Speciation L23 Macroevolution	Ch. 16 Ch. 18	<b>Duck Lab:</b> Assignment (3.5%)	.....



December 6-7	* On Tuesday, Monday classes will be held	<b>Fly Lab:</b> Abstract, Results, Discussion (6%) due Dec 7 <sup>th</sup>
Thursday December 9 <sup>th</sup> – Sunday December 19 <sup>th</sup> <b>Dalhousie University Examinations</b>		

## Faculty of Science Course Syllabus (Section B)

**Fall 2021**

**BIOL 2040: Evolution**

## University Policies and Statements

**This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate**

### Academic Integrity

At Dalhousie University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect (The Center for Academic Integrity, Duke University, 1999). As a student, you are required to demonstrate these values in all of the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity.

**Information:** [https://www.dal.ca/dept/university\\_secretariat/academic-integrity.html](https://www.dal.ca/dept/university_secretariat/academic-integrity.html)

### Accessibility

The Advising and Access Services Centre is Dalhousie's centre of expertise for student accessibility and accommodation. The advising team works with students who request accommodation as a result of a disability, religious obligation, or any barrier related to any other characteristic protected under Human Rights legislation (Canada and Nova Scotia).

**Information:** [https://www.dal.ca/campus\\_life/academic-support/accessibility.html](https://www.dal.ca/campus_life/academic-support/accessibility.html)

### Student Code of Conduct

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner—perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution.

**Code:** [https://www.dal.ca/dept/university\\_secretariat/policies/student-life/code-of-student-conduct.html](https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html)

### Diversity and Inclusion – Culture of Respect

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness

**Statement:** <http://www.dal.ca/cultureofrespect.html>

### Recognition of Mi'kmaq Territory



Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel and support. Visit or e-mail the Indigenous Student Centre (1321 Edward St) ([elders@dal.ca](mailto:elders@dal.ca)).

**Information:** [https://www.dal.ca/campus\\_life/communities/indigenous.html](https://www.dal.ca/campus_life/communities/indigenous.html)

**Important Dates** in the Academic Year (including add/drop dates)

[https://www.dal.ca/academics/important\\_dates.html](https://www.dal.ca/academics/important_dates.html)

**University Grading Practices**

[https://www.dal.ca/dept/university\\_secretariat/policies/academic/grading-practices-policy.html](https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html)

## Student Resources and Support

### Advising

**General Advising** [https://www.dal.ca/campus\\_life/academic-support/advising.html](https://www.dal.ca/campus_life/academic-support/advising.html)

**Science Program Advisors:** <https://www.dal.ca/faculty/science/current-students/academic-advising.html>

**Indigenous Student Centre:** [https://www.dal.ca/campus\\_life/communities/indigenous.html](https://www.dal.ca/campus_life/communities/indigenous.html)

**Black Students Advising Centre:** [https://www.dal.ca/campus\\_life/communities/black-student-advising.html](https://www.dal.ca/campus_life/communities/black-student-advising.html)

**International Centre:** [https://www.dal.ca/campus\\_life/international-centre/current-students.html](https://www.dal.ca/campus_life/international-centre/current-students.html)

### Academic supports

**Library:** <https://libraries.dal.ca/>

**Writing Centre:** [https://www.dal.ca/campus\\_life/academic-support/writing-and-study-skills.html](https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html)

**Studying for Success:** [https://www.dal.ca/campus\\_life/academic-support/study-skills-and-tutoring.html](https://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html)

**Copyright Office:** <https://libraries.dal.ca/services/copyright-office.html>

**Fair Dealing Guidelines** <https://libraries.dal.ca/services/copyright-office/fair-dealing.html>

### Other supports and services

**Student Health & Wellness Centre:** [https://www.dal.ca/campus\\_life/health-and-wellness/services-support/student-health-and-wellness.html](https://www.dal.ca/campus_life/health-and-wellness/services-support/student-health-and-wellness.html)

**Student Advocacy:** <https://dsu.ca/dsas>

**Ombudsperson:** [https://www.dal.ca/campus\\_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html](https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html)

### Safety

**Biosafety:** <https://www.dal.ca/dept/safety/programs-services/biosafety.html>

**Chemical Safety:** <https://www.dal.ca/dept/safety/programs-services/chemical-safety.html>

**Radiation Safety:** <https://www.dal.ca/dept/safety/programs-services/radiation-safety.html>

**Scent-Free Program:** <https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html>

**Dalhousie COVID-19 information and updates:** <https://www.dal.ca/covid-19-information-and-updates.html>