

Faculty of Science Course Syllabus Winter 2022**Department of Biology**

BIOL 2040.03

Evolution

Winter 2022

Instructors:

Lecturers:

Dr. Robert Latta (he/him)Robert.Latta@dal.ca

LSC 7076 B Office Hours* TBA and by appointment

Dr. Mark Johnston (he/him)Mark.Johnston@dal.ca

LSC 7132 Office Hours TBA and by appointment

Labs/Coordination:

Dr. Jen Frail-Gauthier (she/her)jfrail@dal.ca

LSC 3130 Office Hours: online Mondays 1-2PM, 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.*

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.

Course delivery: BIOL 2040 will be **online until the university administration brings us back in-person (at least until January 31, 2022)**, 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. We expect a respectful teaching and learning environment for all, especially during these challenging times. We encourage you to consult the student code of conduct

(https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html)

***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 (**when in-person**) are held in the Chemistry building, room 125, on Tuesdays and Thursdays from 10:05 - 11:25 am. Lecture videos online are asynchronous for you to watch at

Laboratories: Students are required to attend a **two-hour lab every week** (nine labs in total). Online labs will be on Brightspace with a Collaborate room for each lab group (e.g., B01). The in-person labs are held in the LSC Room 4012. Labs occur 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. 5th 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. 2021. *A Student Handbook for Writing in Biology*. 6th ed. Sunderland (MA): Sinauer Associates. 288 p. (NOTE; this is also required for other Biology courses; 5ed is fine to use, too!).

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; March 1 st)
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.

Laboratory attendance is mandatory – online or in-person. 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, COVID exposures, sports event, or another major event;

- Contact Jen 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. *or up to 5% if we remain online.
- to be completed before each new lab (see schedule).
- to be submitted by **11:30 am on Tuesdays** the week they are due. ***Except for when we are doing quizzes for online labs, then they occur during the lab.**
- based on the lab material, which is posted the week before the lab week.
- set up for **one attempt** and **five minutes** to answer the questions and submit your quiz (if online. If done live via Kahoot, they will be done synchronously and with enough time for all students with accessibility – 1 min per question).
- 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%. Be mindful that, although Jen is understanding for if you need an extension for an assignment, you have assignments most weeks, and it's an important time management skill to not fall too far behind, in all of your courses. We aim to complete grading before the following week's lab.

- **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. Please contact Jen if you need an extension.

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

No. Submit the assignment to the course Brightspace site.

- **Can I skip a fly 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.

Please reach out to Jen throughout the course if you are having any difficulties. We understand 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 (or lack thereof) 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](#)

BIOL 2040 Evolution Winter 2022 – Dalhousie University

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

Remaining ONLINE until at least January 28th

Weekly updates / “To-Do” lists will be posted on Brightspace Announcements

Date	Lecture	Read	Assignment Due (before your lab time)	Laboratory / Activity
Jan 5 – 7 (online)	L1 Introduction and overview	Ch 1	.....	<i>No Labs this week</i>
Jan 10 – 14 (online)	L2 Evidence for evolution L3 Mutation and variation	Ch. 2 Ch. 5	.....	Online Introductory Lab to Discuss Logistics and Introduce the Fly Lab
<i>January 14th – Add/Drop Date</i>				
Jan 17 - 21	L4 Natural selection L5 Genetic drift	Ch. 6 Ch. 7	Fly Lab: Materials & Methods (1.5%)	Online Lab: Kahoot Trivia Quiz and Icebreaker Fun if online
Jan 24 - 28	L6 Migration L7 Phylogeny	Ch. 7 Ch. 4	Fly Lab: Introduction (3%)	Online Lab: Kahoot Quiz for Lab 2 Lab 2: Marble Lab
<i>January 28th last day to drop winter term courses without a “W”</i>				
Jan 31 – Feb 4	L8 Phylogeny (second lec) L9 Adaptation & Molecular Evol	Ch. 4 Ch. 15	Marble Assignment (3.5%)	Prelab Quiz for Lab 1 Lab 1 (b): Fly Lab Culture F0 set up
Feb 7 - 11	L10 Development & Evolution L 11 Origin novel characters	Ch. 19 Ch. 19	.....	Prelab Quiz for Lab 3 Lab 3: Phylogeny Lab (Fly Lab: Remove adults)
<i>End content for Midterm Material – Dr. Latta’s last lecture is Lecture 11; Dr. Johnston’s first lecture is Lecture 12 – Midterm Exam based on Lectures 1-11 on Tuesday March 1st in class</i>				
Feb 14 - 18	L12 Multiple loci: why sex? L13 Multiple loci: why sex? Quant. Gen.	Ch. 8 Ch. 9	Phylogeny Lab: Assignment (3.5%)	(Fly Lab: F1 transfer)
Feb 21 – 25	STUDY BREAK – no classes or labs		.....	No labs; but someone must come in to remove fly adults!
Feb 28 – Mar 4	L14 MIDTERM EXAM online March 1 L15 Multiple loci: Quant. Genetics	Ch. 9	.....	(Fly Lab: F2 Transfer)

Mar 7 - 11	L16 Quantitative Genetics L17 Studying Adaptation	Ch. 10 Ch. 10	.....	Prelab Quiz for Lab 4 Lab 4: DNA Sequences Lab (Fly Lab: Remove adults)
<i>March 7th – last day to drop winter term courses with a “W”.</i>				
Mar 14 - 18	L18 Adaptation; Sexual Selection	Ch. 11	DNA Sequences: Assignment (3.5%)	Prelab Quiz for Lab 5 Lab 5: Beetle Lab (Fly Lab: F3 counts, enter data)
Mar 21 - 25	L19 Life-History evolution L20 Life-History evolution	Ch. 13	Beetle Lab: Assignment (3.5%)	Prelab Quiz for Lab 6 Lab 6: Duck Lab
Mar 28 – Apr 1	L21 Speciation L22 Speciation	Ch. 16	Duck Lab: Assignment (3.5%)	<i>No Labs this week</i>
Apr 4 - 6	L23 Macroevolution	Ch. 18	Fly Lab: Abstract, Results, Discussion (6%) due April 7th	<i>No Labs this week</i>
<i>April 8th – April 26th Dalhousie University Examinations</i>				

Faculty of Science Course Syllabus (Section B)
Winter 2022
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

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

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

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).

Information: 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

University Grading Practices

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

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

Black Students Advising Centre: https://www.dal.ca/campus_life/communities/black-student-advising.html

International Centre: 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

Studying for Success: 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

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

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>