BIOL 1020
Introductory Biology I: Cells, Genetics, and Evolution
Fall 2023

Dalhousie University acknowledges that we are in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq People and pays respect to the Indigenous knowledges held by the Mi'kmaq People, and to the wisdom of their Elders past and present. The Mi'kmaq People signed Peace and Friendship Treaties with the Crown, and section 35 of the Constitution Act, 1982 recognizes and affirms Aboriginal and Treaty rights. We are all Treaty people.

Dalhousie University also acknowledges the histories, contributions, and legacies of African Nova Scotians, who have been here for over 400 years.

Course Instructor

Jennifer Van Dommelen, biol1020@dal.ca
student hours on Tuesdays and by appointment; see **Student Resources (Synchronous and Asynchronous Support)**

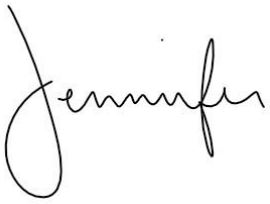
Syllabus Contents

Hello from the Instructor

My name is Jennifer Van Dommelen, and I am a University Teaching Fellow in the Department of Biology. I am the primary instructor in BIOL 1020 and BIOL 1021, and I also do development and supervisory work in the teaching labs for our face-to-face courses, BIOL 1010 and BIOL 1011.

I've also studied online, having completed courses and an Online Teaching Certificate from The Online Learning Consortium and a Master of Science in Education through the University of Southampton. I am interested in the roles of cognitive science and research evidence in teaching and learning; throughout the course I will share how those interests have influenced the course's design.

We also have Teaching Assistants (TAs) who work here in BIOL 1020 and you will be meeting them shortly after the term begins. We're looking forward to working and learning with you!



Pro Tip: Staying in Touch

The best way to reach me is via e-mail at **biol1020@dal.ca.** During the regular work week (Monday-Friday) I typically respond to e-mails within 24 hours. If I need to reach you, I will use your Dalhousie e-mail address. I can also meet with you in real time for audio or video conversation via Collaborate Ultra or Teams – just send an e-mail to arrange a time!

Course Description

BIOL 1020 introduces you to the language, concepts and practice of biology. This course deals with structures and processes that are common to all organisms, from ancient types of bacteria to humans and seed-bearing plants. Topics include cell structure and function, energy production, cell division, mitosis and meiosis, Mendelian genetics, chromosomes and heredity, DNA structure and replication, transcription and translation, DNA technology, evolution, systematics and phylogeny, and origins of prokaryotic and eukaryotic diversity. The course is appropriate for students planning to major in biology and marine biology, in which case BIOL 1021 (or BIOL 1011) should also be taken. It is also appropriate for non-majors wishing to gain an understanding of the science underlying topical issues such as cloning, genetic engineering, cancer, and AIDS.

Prerequisites. Although high school chemistry and biology are recommended, there are no prerequisites for this course, nor is this course a prerequisite for BIOL 1021 (online) or BIOL 1011 (face-to-face).

Exclusions. BIOL 1010, SCIE 15XX, BIOA 1002

Learning Outcomes

The learning outcomes for the course are listed below; in addition, each lesson on Brightspace includes a detailed set of learning objectives related to the specific topics of the lesson.

Upon the successful completion of this course, you will have had the opportunity to explore skills and concepts related to all the course objectives, and you will have a solid foundation for pursuing upper-level studies in biology.

Learning Outcomes for Unit I: Cell Biology

- Describe the structure and function of the organelles found in eukaryotic cells, demonstrating an appreciation for the overall architecture of the cell.
- Give examples of how proteins may be post-translationally modified and targeted to correct destinations.
- Describe the process by which carbohydrates, lipids and proteins are assembled from monomers; identify their functional roles in the eukaryotic cell.
- Describe the basic chemical structure of deoxyribonucleic acid (DNA) and how it differs from that of ribonucleic acid (RNA).
- Identify the components of biological membranes, including the various types of membrane proteins.
- Explain the fluid mosaic model and describe how membranes exhibit selective permeability.
- Understand the role of ATP as the energy currency in the cell and appreciate its importance for driving cellular work.
- List the key products and features of glycolysis, the citric acid cycle, and oxidative phosphorylation and understand the flow of energy through the entire process.
- Understand the mechanism by which a signal is transmitted into the cell via G protein- coupled receptors and tyrosine kinase receptors.
- List several examples of second messengers and describe how each is involved in signal transduction pathways.
- Recall the steps relating to cell division, understanding what cellular processes happen at each step, and describe the control mechanisms for the process.

Learning Outcomes for Unit II: Genetics and Molecular Biology

- Compare and contrast the fundamental features of mitosis and meiosis with emphasis on the movement of homologous chromosomes during these cellular reproductive processes.
- Define Mendel's two laws of heredity that explain the transmission of traits from one generation to the next and provide selected examples of transmission of traits that deviate from these laws.
- Analyze human pedigrees to determine if a trait is dominant or recessive, whether the gene(s) associated with the trait is located on an autosome or sex chromosome, and if the trait is likely associated with a single gene or more than one gene.
- Describe the role that DNA and RNA play in the transfer of information from genotype (DNA) to phenotype (protein) and the deciphering of the genetic code.
- Identify the regulatory elements and how they function in the control of gene expression of inducible and repressible operons in prokaryotes.
- Define the classes of physical and chemical mutagens and their effect on the coded amino acids in a polypeptide, and the resulting phenotype.

- Understand the basic principles of DNA technology/biotechnology, its applications and the ethical and societal implications of this technological revolution.
- Understand some of the ways that bioinformatics data is collected, stored, and used to investigate scientific questions.

Learning Outcomes for Unit III: Evolution

- Describe the basic tenets of 'Darwinian evolution': i) the Tree of Life concept, and ii) natural selection (including different modes of selection) leading to adaptive evolution
- Articulate the concept of homology, and how biogeography and transitional fossils provide evidence of evolution.
- Use the Hardy-Weinberg principle to calculate equilibrium genotype and allele frequencies (one locus, two alleles) in a population.
- Define gene flow, genetic drift, and founder effect, and explain how they influence allele frequencies in populations.
- Explain the 'biological species concept' and distinguish between and give examples of i) pre- and post-zygotic reproductive barriers, and ii) allopatric and sympatric speciation.
- Interpret the information in simple phylogenetic trees and taxonomies; distinguish between monophyly, paraphyly and polyphyly.
- Demonstrate an understanding of molecular phylogenetics, including the concept of tracing the evolutionary history of genes (e.g. gene duplication, horizontal gene transfer).
- Describe the most general attributes of the fossil record, including mass extinctions (with examples) and adaptive radiations.
- Describe basic concepts that explain evolution of complex features (e.g. evolution of developmental regulation, concept of exaptation).
- Describe the most basic similarities and differences between Bacteria, Archaea and Eukaryotes, and the evolutionary relationships between protists and animals, plants, and fungi.
- Describe the phenomenon of primary endosymbiosis and its role in the origins of mitochondria and plastids; compare with the concept of secondary endosymbiosis.

Learning Outcomes for Labs

- Work with scientific questions, propose hypotheses as tentative answers to those questions, and generate observable predictions consistent with a hypothesis in the context of a particular experiment.
- Collect both quantitative and qualitative data through careful observations, report data using written descriptions, graphs, tables, and sketches, and interpret data to assess hypotheses and generate conclusions.
- Know when to make use of common biological research tools such as compound microscopes, image processing software, and bioinformatics tools.
- Construct a phylogenetic tree using shared characters and parsimony and interpret it as a visual hypothesis about relatedness; use the tree to generate testable predictions.
- Analyze data using statistical techniques (mean, standard deviation, n, chi-square test).
- Recognize the need to acknowledge others' work and learn to cite it appropriately, following academic conventions.

Course Structure

Course Delivery. Asynchronous online instruction with optional synchronous help sessions and mandatory on-campus exams. Students connecting to online resources from outside Canada are responsible for ensuring awareness and compliance with any applicable laws in the country from which they are connecting.

Lectures. Recorded lectures are posted in Brightspace and are continuously available.

Laboratories. Conducted online / at home; six labs in total throughout the term (due approximately every two weeks; see **Course Schedule Summary** in this syllabus).

Student Resources (Synchronous and Asynchronous Support)

Pomodoro Monday! (synchronous) Join the instructor in Collaborate Ultra for three timed, focused work sessions, modelled after the Pomodoro Technique. Each session is 25 minutes with a short break in between. Work on the course, or on anything else! Pomodoro Mondays are not mandatory and are not recorded.

Ultra Tuesday! (synchronous) Sometimes it's just easier to ask a question or get some help in real time. Every Tuesday it's all hands on deck in Collaborate Ultra: our teaching assistants and the instructor will each host a help session during a different hour throughout the day. You are welcome to attend any of the sessions. Ultra Tuesdays are casual, drop-in Q&A help sessions; no formal instruction is planned for this time. Ultra Tuesdays are not mandatory and are not recorded.

Pro Tip: Live Help

If Tuesdays don't work for you, feel free to contact the instructor at **biol1020@dal.ca** to arrange a meeting via web conference for another time.

E-Mail Support. (asynchronous) The instructor and TAs are happy to take your questions by e-mail. You can reach the instructor at **biol1020@dal.ca**; TA contact details will be shared when the course gets underway.

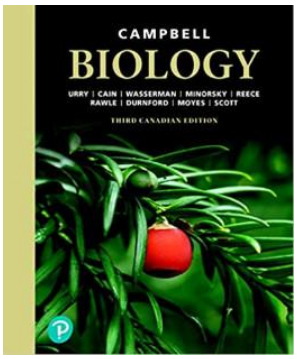
Discussion Board Support. (asynchronous) The **Burning Questions** topic on the Brightspace Discussion Board is another place where you can post questions if you wish, with the option to post anonymously.

Course Materials

Textbook. The required textbook for this course is any recent edition from the *Campbell Biology* series, including Canadian editions 1-3 and US editions 9-13. The same book is used in BIOL 1010 and BIOL 1011 (our face-to-face courses). The Dalhousie Bookstore offers the 3rd Canadian edition in print or e-text form:

- 3rd Canadian edition: Perpetual Willo eText
- 3rd Canadian edition: print + MasteringBiology® access code

MasteringBiology® is an optional study resource and is ***not*** required for this course. Some of the MasteringBiology® resources are reproduced in Brightspace and accessible to everyone in the course. Instructions for accessing the Willow eText and MasteringBiology® are posted in Brightspace.



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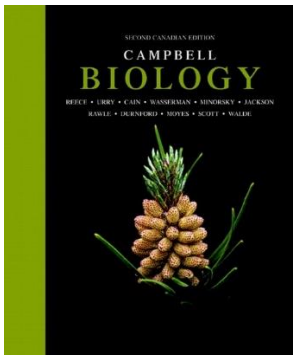

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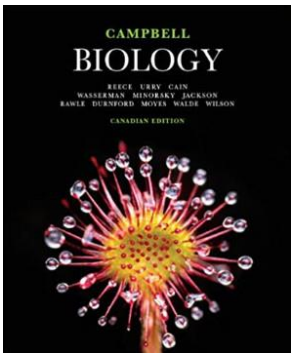

1st Canadian edition

Lab Materials: Some common household items and free software will be required for the labs. The first lab of the course will help you locate and test these materials.

Online Course Space. The course is conducted in Brightspace and is accessible on the first day of term; all you need to get started is an activated NetID. The first lesson is an Orientation, which presents a tour of the course structure and gives you the opportunity to try out Brightspace's tools. For the technical requirements related to the course, please visit the BIOL 1020/21 public information site.

Course Content and Learning Activities

There is a variety of learning activities in the course, some of which you will participate in every week and others only occasionally. More details about all these activities are included in the Orientation lesson on Brightspace. See also the **Course Schedule Summary** section of this syllabus.

Lesson and Lab Topics. The chapters listed below apply to any of the editions of the textbook. Any lab readings are provided as part of the instructional material for the labs. Detailed learning objectives that will help you focus on the most relevant material from the lessons and labs are provided on Brightspace.

Lesson Number and Topic	Chapter Readings
Lesson 1: Orientation	n/a
Unit I: Cell Biology	
Lesson 2: Large Biological Molecules	5
Lesson 3: Cell Structure and Membranes	6 and 7
Lesson 4: Energy and Metabolism	8 and 9
Lesson 5: Cell Communication and the Cell Cycle	11 and 12
Unit II: Genetics and Molecular Biology	
Lesson 6: Patterns of Inheritance	13 and 14
Lesson 7: Biological Basis of Inheritance	15 and 16
Lesson 8: Molecular Biology of the Gene	17 and 18
Lesson 9: Biotechnology and Bioinformatics	20 and 21
Unit III: Evolution	
Lesson 10: Descent With Modification and Evolution of Populations	22 and 23
Lesson 11: The Origin of Species and Macroevolution	24 and 25
Lesson 12: Phylogeny, Systematics, and Microbial Diversity	26, 27, and 28
Lab Number and Topic	**Readings / Instructions**
Lab 1: Tools and Processes of Science	provided online
Lab 2: Thinking About Scale – Microscopy and Diffusion	provided online
Lab 3: Mendelian Genetics	provided online
Lab 4: Biotechnology	provided online
Lab 5: Microevolution and the Hardy-Weinberg Equilibrium	provided online
Lab 6: Plasmolysis and Protists	provided online

Recorded Lectures. In BIOL 1020, readings are supported by the lectures, rather than the other way around. The goal of the lecture series is to highlight the thematic connections among the topics of the course as well as to give greater attention to topics and concepts that students traditionally find difficult. Unlike some face-to-face courses, the lectures in this course are *not* intended to be the primary mode by which you learn the material.

Pro Tip: Lectures

Lectures in BIOL 1020 do not explicitly address all the learning objectives of the course and are not mandatory to view. You can't meet all the learning objectives of a lesson by ***only*** watching the lectures, but you ***can*** meet all the Learning Objectives of a lesson by doing the readings and other required activities!

Graded Quizzes. Each lesson includes an online quiz. The quiz consists of a set of multiple-choice questions randomly selected from a testbank.

You are offered two attempts at each graded quiz, and the higher score will count toward your final grade. Each lesson quiz includes questions from each of the three previous lessons to help you recall material that came previously.

Extra Practice Quizzes. In addition to the graded quizzes (i.e., those quizzes that count toward your final grade), there are Extra Practice Quizzes. These are identical in format to the graded quizzes, but you have unlimited attempts at them, and your scores do not count toward your final grade.

A lesson's Extra Practice Quiz is automatically available shortly after the deadline for its graded quiz passes, with the exception of the Extra Practice Quizzes for Lessons 5, 9, and 12, which are released at the same time as those for Lessons 4, 8, and 11, respectively (so that you have more time to use them to prepare for the exams).

Every time you do a quiz, whether for marks or for extra practice, you will be presented with a unique combination of questions.

Pro Tip: Learning and Memory

Quizzes are a form of **retrieval practice** – activities that help you learn by pulling information *out* of your brain, rather than by cramming it *in*!

Lab Assignments. Labs vary in style from online investigations to activities that will take you away from the computer. Required submissions consist of short-answer questions and images, rather than full lab reports. Some labs will require you to gather or purchase some common household items or install free software. Detailed information about each lab is provided in the **Labs** module in the Table of Contents on Brightspace. Labs are made available from the start of term (or as soon as possible for labs that are under revision).

Pro Tip: Labs

We recommend that you make time in your schedule at least one week prior to each lab due date to read over lab and see what is required. The sooner you start working on a lab, the more time there is to get help if you need it. For most labs, you can split the work of the lab into smaller pieces over multiple days.

BioTA Podcast Bonus. The BioTA Podcast Bonus activity is designed to experiment with podcasts as a form of instructional material. You will earn bonus marks for completing the activity and providing feedback by the deadline posted in the full course schedule. Full details are posted on Brightspace.

Foldscope Bonus. We will provide you with a Foldscope at no charge and that you can keep. You will need the foldscope for at least one of your labs, and you can earn bonus marks by submitting extra foldscope work. See Lab 1 on Brightspace for details.

Course Schedule Summary

This is an overview; a complete course schedule containing all fixed due dates and deadlines for the course is provided as a separate document on Brightspace. All times are Atlantic Time (standard or daylight savings as appropriate). Recurring events do not take place during the Study Break week.

- **Lessons:** Orientation begins Sep 5th; remaining lessons run Monday-Sunday except during the Fall Break Week (twelve lessons in total including the Orientation)
- **Lectures:** n/a (recordings posted online)
- **Graded Quizzes:** due Thursdays at 11:30 pm, starting Sep 21st
- **Labs:** due alternate Tuesdays at 11:30 pm, starting Sep 20th
- **BioTA Podcast Bonus:** due Tuesday, Oct 24th, 11:30 pm
- **Foldscope Bonus:** due Tuesday, Nov 28th, 11:30 pm
- **Pomodoro Monday!:** (optional) Mondays, 2:35-4:05 pm, starting Sep 11th; see **Student Resources (Synchronous and Asynchronous Support)**
- **Ultra Tuesday!**: (optional) Tuesdays, times To Be Announced, starting Sep 12th; see **Student Resources (Synchronous and Asynchronous Support)**
- **Exam I:**
  - in HALIFAX: Thursday, Oct 12th, 6:00-7:30 pm, LSC 240 and LSC 338
  - in TRURO: Wednesday, Oct 11th, 6:00-7:30 pm, Haley 116
- **Exam II:**
  - in HALIFAX: Thursday, Nov 9th, 6:00-7:30 pm, LSC 240 and LSC 338
  - in TRURO: Wednesday, Nov 8th, 6:00-7:30 pm, Haley 116
- **Exam III:**
  - during the final exam period; to be scheduled by the Registrar's Office for Halifax and by the instructor for Truro

Expectations for Participation

It is important to maintain consistent, regular effort in the course or it can quickly become overwhelming. You should plan to check Brightspace frequently and submit work on a weekly basis.

Each week you can plan to spend:

- 1-2 hours reading online content (announcements, lesson guides, etc.)
- 3-5 hours on textbook readings
- 2-4 hours preparing assignments
- 1-2 hours on graded quizzes (quiz submission, not preparation)
- time viewing recorded lectures (variable)
- time on Extra Practice Quizzes (variable)
- time attending synchronous sessions (non-mandatory; variable)

In other words, schedule 7-13 hours per week for this course, which is the same amount of time that you are expected to spend on a comparable face-to-face course, including lectures, labs, and independent study time. Some weeks you'll be at the lower end of the range, some weeks you may go over. It depends on your background experience, working style, and how well you take to the material.

Pro Tip: Planning Your Effort

Taking a course online is not necessarily easier or faster than taking it in a campus classroom. It could take as much or more time than a face-to-face course; the convenience is that you don't have to come to campus to attend class/lab at a set time every week. Think of it as a work-at-your-own-*place* (rather than a work-at-your-own-pace) course.

The instructor and teaching assistants in this course are here to support your learning and help you in any way we can. We will endeavour to respond to private messages as soon as possible during the work week (Monday-Friday) and return your labs to you within one week of submission.

You can also expect regular general feedback and interaction from us in the form of announcements, office hours, and web conferences, which can be scheduled upon request at mutually convenient times.

Dropping the Course. We hate to see you go, but if you decide that you want to drop the course, you must do so via DalOnline. Failure to participate does not constitute withdrawal from the course, and failure to withdraw (i.e., drop officially) can cause problems with your transcript and bank account! If you remain registered in the course, even if you do not participate, you will receive a final grade of 'INC' (for 'incomplete'), which will affect your GPA and require a waiver to reverse. If you drop the course via DalOnline by the relevant deadlines, you are eligible for a partial tuition refund.

Assessment and Grading Scheme

Your final mark in this course is based on several components and there is some flexibility in the marking scheme. See Brightspace for full details about each assessment.

Assessment	Marks	Details
Quizzes	5	eleven multiple-choice quizzes at 0.5 marks each; lowest mark dropped
Labs	18	six labs at 3 marks each; one Mulligan permitted (see below)
Exam I	25	covers Unit I; multiple-choice; closed-book; 90 minutes
Exam II	25	covers Unit II; multiple-choice; closed-book; 90 minutes
Exam III	27	covers Unit III and Labs 1-5; multiple-choice; closed-book; 120 minutes
BioTA Podcast Bonus	3	listen to a podcast and answer questions
Foldscope Bonus	3	collect, photograph, and identify a microscopic specimen
Total	**100 + 6**	

Pro Tip: Mulligan Day

On or near the last day of the term (see the schedule for the exact date); Mulligan Day is your chance to submit any ONE lab that you have not already submitted for grading. If you miss a lab during the term for any reason, you can submit it on Mulligan Day with no questions asked! (Please note that Mulligan Day is for *missed* lab submissions, not resubmissions.)

Final Grade Conversion. Your final mark out of 100 is converted to a letter grade according to the Dalhousie Common Grade Scale:

A+: 90-100	A: 85-89	A-: 80-84
B+: 77-79	B: 73-76	B-: 70-72
C+: 65-69	C: 60-64	C-: 55-59
D: 50-54		
F: 0-49		

Exams

There is one exam at the end of each Unit of the course. These are closed-book, pen-and-paper, multiple-choice exams, delivered on campus. The questions on the exams are very similar to those on the graded quizzes and the Extra Practice Quizzes.

Off-campus exams are not offered under any circumstances. You should plan to write your exams **in person**, **on campus**, **at their scheduled times.** If you must miss an exam; makeup exams are possible; see the **Course Policies on Missed or Late Academic Requirements** section of this syllabus.

There are NO EXCEPTIONS to the requirement to write the exams on campus. If you are unable to travel to Halifax or to Truro to write exams, then you may have to consider dropping the course or deferring it to a future term when you can write the exams on campus. Exams will be offered online ***if and only if*** COVID protections make it necessary to do so.

Deferred Exams (Summer Term Only). Students who plan to spend the summer in or near Halifax or Truro are expected to write the exams on campus at their scheduled times. Recognizing however that many students want or need to leave Nova Scotia during the summer for various reasons, we offer deferred exams in late August and September.

Deferred exams are offered to those students for whom it would present a significant hardship to travel to campus during the summer. Deferred exams are NOT intended as an option for students located near Halifax or Truro who are unable to write an exam at its scheduled time for unanticipated reasons (such as illness); in this case, students may request a makeup exam (see **Course Policies on Missed or Late Academic Requirements** in this syllabus).

Watch for announcements from the instructor about how to report your intent to write a deferred exam during the summer term.

The Bottom Line on Exams. Our expectation is that you will make every reasonable effort to attend the exams at their scheduled times, in either Halifax or Truro. Please watch Brightspace and your Dalhousie e-mail for further information from the instructor.

In the summer term, students who wish to write deferred exams in late August or September must contact the instructor as directed.

Students who encounter unanticipated reasons for missing an exam may request to write a make-up exam, which has a designated date and time. In the summer term, such students will **not** automatically be permitted to write a deferred exam.

All requests to write a make-up exam or a deferred midterm exam must be approved in advance by the instructor. If you fail to attend an exam without having contacted the instructor, you will not automatically be permitted to write a deferred or make-up exam.

If you have any questions about writing exams, please contact the instructor as early in the term as possible.

Course Policies on Missed or Late Academic Requirements

Absences and Late Work. It is better to maintain your momentum and progress in the course than to get bogged down by minor setbacks. In lieu of extensions, there are buffers in place to help you recover marks lost due to missed submissions:

- Your lowest quiz mark is dropped from the final grade calculation, so missing one of these will not affect your final grade. If you miss more quizzes, the marks lost are small and you still have access to the Extra Practice Quizzes to help you prepare for the exams.
- There is a 24-hour grace period for every lab and bonus activity deadline: the submission dropbox will remain open for an additional 24 hours past the deadline and there is no penalty for submitting your work during the grace period.
- You can take advantage of Mulligan Day if you miss a lab assignment entirely.
- You can earn bonus marks.

In the case of longer interruptions that may affect your work in the course, the instructor will help you work out a plan – just send an e-mail!

Pro Tip: Disclosure

If you need some flexibility with deadlines or other assistance of some kind, please let us know. The sooner you reach out, the more options there are for solutions. It is *not* necessary, however, to provide documentation (other than the Student Declaration of Absence) or to share any details about your personal situation if you are not comfortable doing so.

Makeup Exams. While you are expected to make every reasonable effort to write the exams on their scheduled dates, we understand that life sometimes gets in the way. The most important thing to remember is to contact the instructor at **biol1020@dal.ca** as soon as you anticipate a conflict, or as soon as possible after an unexpected event.

There will be one makeup exam session in Halifax in the morning and one in Truro in the afternoon on the Friday of the week after the scheduled dates for Exams I and II (see full course schedule on Brightspace). Makeups for Exam III will be offered in early January. Times and locations will be confirmed with students who need to write a makeup exam. **If you need to write a makeup exam, you should be prepared to rearrange your schedule to do so.** Please submit a Student Declaration of Absence (see below) to write a makeup exam.

Makeup exams are intended for students who miss a scheduled exam; they are not available to students who do poorly on the regular examination and want to improve their mark.

Per Section 16.8 of Dalhousie's Academic Regulations (see also University Regulations; Policy for the Scheduling of Courses/Examinations), arrangements for missed exams and other work are made at the instructor's discretion.

Student Declaration of Absence. For short-term absences (3 days or fewer) due as illness, injury, or other professional or academic obligations that conflict with an exam, you should:

(1) contact the instructor at **biol1020@dal.ca** as soon as you are aware of the conflict, AND
(2) submit a Student Declaration of Absence (SDA), available as an "assignment" in Brightspace, within three days of your absence. No other documentation is required.

SDAs are required for missed exams only; they are *not* required for missed quizzes or labs.

If you experience or anticipate a longer-term absence (more than three days), contact the instructor at **biol1020@dal.ca** to work out a plan for completing and submitting your work.

Course Policies Related to Academic Integrity

Academic integrity, with its embodied values, is seen as a foundation of Dalhousie University. It is the responsibility of all students to be familiar with behaviours and practices associated with academic integrity. The Academic Integrity website provides students and faculty with information on plagiarism and other forms of academic dishonesty and has resources to help students succeed honestly.

Academic Integrity in BIOL 1020/21. While you are free to ask questions and confer with your peers while working on assignments in BIOL 1020/21, any work you submit must be your own, and must not have been submitted previously in the course unless the instructor has given you explicit permission to do so. A good strategy for protecting the originality of your work is to *converse* with your peers and make your own notes based on your conversations. Avoid sharing files. For the purposes of the intellectual work we ask you to do in this course, answers provided by generative AI and large language models such as ChatGPT are NOT your own work. Additional guidance about academic integrity and academic standards is provided throughout the course.

We do not use plagiarism detection software (e.g., URKUND) in BIOL 1020/21. We may use search engines to test the originality of submissions.

Course materials are provided for your personal study and may not be shared in any manner outside of Brightspace. Circulating course materials to third parties, including posting them to websites such as Chegg and CourseHero, is intellectual property theft and may violate copyright law.

Instructors are obligated to forward suspected cases of plagiarism or other forms of academic cheating to an Academic Integrity Officer for review. In BIOL 1020/21 we have reported cases that involved copied labs, plagiarism, self-plagiarism, use of images without attribution, improper data sharing, possession of prohibited items during exams, posting course materials to third-party websites, and cheating on exams. Penalties have ranged from a mark of zero for copied labs to expulsion from the University for cheating on exams.

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 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 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. Additional academic integrity information can be found at:
https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility

The Student Accessibility Centre is Dalhousie's centre of expertise for matters related to student accessibility and accommodation. If there are aspects of the design, instruction, and/or experiences within this course (online or in-person) that result in barriers to your inclusion, please contact the Student Accessibility Centre (https://www.dal.ca/campus_life/academic-support/accessibility.html) for all courses offered by Dalhousie with the exception of Truro. For courses offered by the Faculty of Agriculture, please contact the Student Success Centre in Truro (https://www.dal.ca/about-dal/agricultural-campus/student-success-centre.html).

Code of Student 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. The full Code of Student Conduct can be found at: https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

Conduct in the Classroom – Culture of Respect

Substantial and constructive dialogue on challenging issues is an important part of academic inquiry and exchange. It requires willingness to listen and tolerance of opposing points of view. Consideration of individual differences and alternative viewpoints is required of all class members, towards each other, towards instructors, and towards guest speakers. While expressions of differing perspectives are welcome and encouraged, the words and language used should remain within acceptable bounds of civility and respect.

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 (Strategic Priority 5.2). Additional diversity and inclusion information can be found at: http://www.dal.ca/cultureofrespect.html

Fair Dealing Policy

The Dalhousie University Fair Dealing Policy provides guidance for the limited use of copyright protected material without the risk of infringement and without having to seek the permission of copyright owners. It is intended to provide a balance between the rights of creators and the rights of users at Dalhousie. Additional information regarding the Fair Dealing Policy can be found at:
https://www.dal.ca/dept/university_secretariat/policies/academic/fair-dealing-policy-.html

Internationalization

At Dalhousie University, 'thinking and acting globally' enhances the quality and impact of education, supporting learning that is "interdisciplinary, cross-cultural, global in reach, and orientated [*sic*] toward solving problems

that extend across national borders." Additional internationalization information can be found at: https://www.dal.ca/about-dal/internationalization.html

Missed or Late Academic Requirements due to Student Absence

Dalhousie students are asked to take responsibility for their own short-term absences (3 days or fewer) by contacting their instructor by phone or email prior to the academic requirement deadline or scheduled time and by submitting a completed Student Declaration of Absence to their instructor in case of missed or late academic requirements.

Read more: https://www.dal.ca/dept/university_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.html

Originality Checking Software

The course instructor may use Dalhousie's approved originality checking software and Google to check the originality of any work submitted for credit, in accordance with the Student Submission of Assignments and Use of Originality Checking Software Policy. Students are free, without penalty of grade, to choose an alternative method of attesting to the authenticity of their work and must inform the instructor no later than the last day to add/drop classes of their intent to choose an alternate method. Additional information regarding Originality Checking Software can be found at: https://www.dal.ca/dept/university_secretariat/policies/academic/student-submission-of-assignments-and-use-of-originality-checking-software-policy-.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 at 1321 Edward St. or elders@dal.ca. Additional information regarding the Indigenous Student Centre can be found at: https://www.dal.ca/campus_life/communities/indigenous.html

Student Use of Course Materials

Course materials are designed for use as part of this course at Dalhousie University and are the property of the instructor unless otherwise stated. Third party copyrighted materials (such as books, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law. Copying this course material for distribution (e.g. uploading to a commercial third-party website) may lead to a violation of Copyright law.

Student Resources and Support

University Policies and Programs

Classroom Recording Protocol: https://www.dal.ca/dept/university_secretariat/policies/academic/classroom-recording-protocol.html

Dalhousie Grading Practices Policies: https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html

Grade Appeal Process: https://www.dal.ca/campus_life/academic-support/grades-and-student-records/appealing-a-grade.html

Important Dates in the Academic Year (including add/drop dates): http://www.dal.ca/academics/important_dates.html

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

Sexualized Violence Policy: https://www.dal.ca/dept/university_secretariat/policies/health-and-safety/sexualized-violence-policy.html

Learning and Support Resources

Black Student Advising Centre: https://www.dal.ca/campus_life/communities/black-student-advising.html
Copyright Office: https://libraries.dal.ca/services/copyright-office.html
Dalhousie Libraries: http://libraries.dal.ca/
Dalhousie Ombudsperson: https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html
Dalhousie Student Advocacy Services: https://www.dsu.ca/dsas?rq=student%20advocacy
Elders-in-Residence (The Elders in Residence program provides students with access to First Nations elders for guidance, counsel, and support. Visit the office in the Indigenous Student Centre or contact the program at elders@dal.ca or 902-494-6803: https://cdn.dal.ca/content/dam/dalhousie/pdf/academics/UG/indigenous-studies/Elder-Protocol-July2018.pdf
Faculty of Science Advising Support: https://www.dal.ca/faculty/science/current-students/undergrad-students/degree-planning.html
General Academic Support – Advising (Halifax): https://www.dal.ca/campus_life/academic-support/advising.html
General Academic Support – Advising (Truro): https://www.dal.ca/about-dal/agricultural-campus/ssc/academic-support/advising.html
Human Rights and Equity Services: https://www.dal.ca/dept/hres.html
Indigenous Connection: https://www.dal.ca/about-dal/indigenous-connection.html
Indigenous Student Centre: https://www.dal.ca/campus_life/communities/indigenous.html
International Centre: https://www.dal.ca/campus_life/international-centre.html
LGBTQ2SIA+ Collaborative: https://www.dal.ca/dept/vpei/edia/education/community-specific-spaces/LGBTQ2SIA-collaborative.html
On Track (helps you transition into university, and supports you through your first year at Dalhousie and beyond): https://www.dal.ca/campus_life/academic-support/On-track.html
South House Sexual and Gender Resource Centre: https://southhousehalifax.ca/about/
Student Health & Wellness Centre: https://www.dal.ca/campus_life/health-and-wellness.html
Study Skills/Tutoring: http://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html
Writing Centre: https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html

Safety

Biosafety: http://www.dal.ca/dept/safety/programs-services/biosafety.html
Chemical Safety: https://www.dal.ca/dept/safety/programs-services/chemical-safety.html
Laser Safety: https://www.dal.ca/dept/safety/programs-services/radiation-safety/laser-safety.html
Radiation Safety: http://www.dal.ca/dept/safety/programs-services/radiation-safety.html