

Faculty of Science Course Syllabus
Department of Biology
 BIOL 1020
 Introductory Biology I: Cells, Genetics, and Evolution
 Fall 2019

Instructor:	Jennifer Van Dommelen
e-mail:	biol1020@dal.ca
Lectures:	n/a (recorded lectures posted online)
Laboratories:	n/a (all conducted online or offsite)
Tutorials:	n/a
Office Hours and Location:	by appointment; LSC 2124

This syllabus is adapted from the web-based (HTML) version that appears in the course website on Brightspace. The HTML version contains active hyperlinks throughout. See also <https://biol102021.wordpress.com>.

What Is a Syllabus?

A **syllabus** is a document which describes a course, delineates responsibilities and expectations of both the students and the teaching team, and provides references to other university resources. We are bound by the terms of this syllabus as it pertains to this particular course, as well as by Dalhousie University's general [Academic Regulations](#) and [University Regulations](#). There is a lot of information here; you certainly don't need to memorize it, but you should definitely review the syllabus at your earliest convenience, refer to it as necessary throughout the term, and contact the instructor with any questions or concerns you may have.

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Meet the Instructor

Primary Instructor (Fall and Winter terms): Jennifer Van Dommelen

E-Mail: biol1020@dal.ca

Phone: (902) 494-1584 (no voice mail!)

Office Location: LSC 2124

Office Hours: by appointment (in person and online)



Biography

I am the primary instructor in BIOL 1020 and BIOL 1021. I also do development and supervisory work in the teaching labs for our face-to-face courses, BIOL 1010 and BIOL 1011. I am an undergraduate advisor in the [Biology Department](#) and I work with Dalhousie's [Centre for Learning and Teaching](#) on a number of projects related to e-learning. I'm interested in the role of cognitive science and research evidence to inform teaching and learning; in addition to my teaching and service work I'm currently working on a Master of Science in Education through the [University of Southampton](#).

How To Contact Me

The best way to reach me is via e-mail, at the address biol1020@dal.ca. During the regular work week (Monday-Friday) I typically respond to e-mails within 24 hours. On weekends I will monitor e-mail as my schedule permits, but I cannot guarantee a response until Monday.

I am frequently out of my physical office; if you cannot reach me by phone, send me an e-mail to arrange a mutually convenient time for a call. In the case of long distance calls, I am happy to call you. Office hours are by appointment -- just send me an e-mail to make the arrangements. I can meet with you in person or online via web conferencing. And feel free to stop in if you see my office door open!

Summer Term Instructor

There may be a different instructor for the Summer term offering of BIOL 1020 – watch the course site for an introduction and contact details.

Content Overview and Prerequisites

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.

BIOL 1020 is offered on the same schedule as on-campus courses (approximately 13 weeks, with fixed start and end dates each term). The course content is organized into **units**, which in turn contain **lessons** and other reference and support material. Each lesson (one per week) is devoted to a different topic, and includes all of the readings and learning activities related to that topic. A typical week's activities include:

- textbook readings
- supplementary readings where applicable
- non-graded interactive learning activities
- a lab assignment (alternate weeks)
- online quizzes
- opportunities to participate in discussions with classmates, teaching assistants (TAs), and the instructor
- a recorded lecture

Online and home lab activities that develop your observation, communication and problem solving skills and understanding and use of the scientific method are included; collaborative learning is encouraged and regular feedback is offered. Midterm and final exams (one each) are conducted on-campus in either Halifax or Truro (see **Midterm and Final Exams** in this syllabus for further details).

The first lesson of the course is an Orientation lesson, which presents a detailed tour of the course structure and gives you the opportunity to try out and troubleshoot all of the tools and technologies you'll be using throughout the term.

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). For the technical requirements related to this course, please visit the [Preparing for the Course](#) page at the [BIOL 1020/21 public information site](#).

Learning Outcomes and Objectives

The learning outcomes for each unit of the course are listed below; in addition, each lesson 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 of the course objectives, and you will have a solid foundation for pursuing upper-level studies in biology.

You may also want to consider your own personal learning objectives, whether they are specific to this course or more general. What do you expect to learn in an introductory biology course? What would you *like* to learn in an introductory biology course? What are your general learning and academic goals?

Learning Outcomes - 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 and 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.

* plus either BIOL 1021 (online) or BIOL 1011 (face-to-face)

Learning Outcomes - 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 controlled by 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 - Evolution

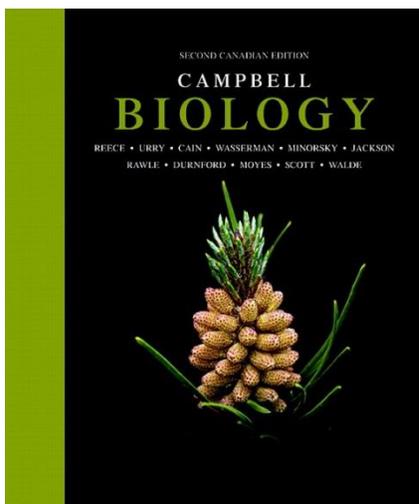
- Describe the basic tenets of 'Darwinian evolution': i) the Tree of Life concept, and ii) natural selection (including different modes of selection) leading to adaptive evolution
- Articulate the concept of homology, and how biogeography and transitional fossils provide evidence of evolution.
- Use the Hardy-Weinberg principle to calculate expected 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 - Labs

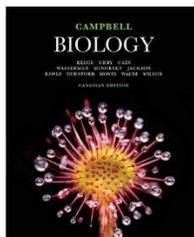
- Work with scientific questions, propose hypotheses a tentative answers to those questions, and generate observable predictions consistent with a hypothesis in the context of a particular experiment.
- Collect both quantitative and qualitative data through careful observations, report data using written 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, gel electrophoresis units, 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 basic statistical techniques (mean, standard deviation, n, chi-square test).

Textbook

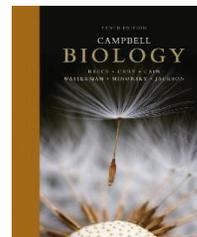
The textbook for the course is *Campbell Biology* Second Canadian Edition (2018)¹, available at the [Dalhousie Bookstore](#). This is the same textbook that is used in BIOL 1010/11.



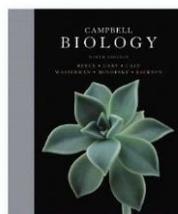
Second Canadian Edition



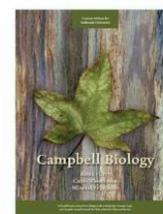
First Canadian Edition



10th edition



9th edition



Dalhousie edition

Other editions of the textbook that are also acceptable are the First Canadian Edition, *Campbell Biology* 10e, *Campbell Biology* 9e, and *Campbell Biology* Dalhousie Edition. There is some variation among them, but all will help you to meet the learning objectives for each lesson.

Depending on where you buy your book and whether you buy a new or used copy, your purchase may also include supplements such as print study guides or access codes to electronic media such as an e-book or MasteringBiology® (or they may be available for purchase separately). These supplements are **not** required, but you are welcome to use them.

¹ Reece JB, Urry LA, Cain ML, Wasserman SA, Minorsky PV, Jackson RB, Rawle F, Durnford D, Moyes C, Scott K, Walde S. 2018. *Campbell Biology*. Second Canadian Edition. Hoboken, NJ: Pearson Education Inc.

Lesson Topics and Readings

This page lists reading material from the textbook only; additional required reading related to course content is supplied in the course site where applicable. A detailed list of learning objectives is provided with each lesson to help you focus on the key material from each chapter.

The chapters cited below apply to all editions of the textbook listed on the [Textbook](#) page of the syllabus.

Lesson Number and Topic	Chapters
1: Orientation	1
Unit I: Cell Biology	
2: Large Biological Molecules	5
3: Cell Structure and Membranes	6 and 7
4: Energy and Metabolism	8 and 9
5: Cell Communication and the Cell Cycle	11 and 12
Unit II: Genetics and Molecular Biology	
6: Patterns of Inheritance	13 and 14
7: Biological Basis of Inheritance	15 and 16
8: Molecular Biology of the Gene	17 and 18
9: Biotechnology and Bioinformatics	20 and 21
Unit III: Evolution	
10: Descent With Modification and Evolution of Populations	22 and 23
11: The Origin of Species and Macroevolution	24 and 25
12: Phylogeny, Systematics, and Microbial Diversity	26, 27, and 28

Lectures

The course includes a series of lectures that were recorded live and posted in the course website. 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. The lectures are not intended to be the primary mode by which the course content is delivered, and do not explicitly address all of the learning objectives for the course. You are responsible for all the stated learning objectives for each lesson, whether or not they are discussed during the lectures.

In other words, the lectures in BIOL 1020/21 are intended to be a *supplement* to the course content, and are not mandatory to view. You can meet all of the learning objectives of the course with the readings and other required activities.

Schedule

Lessons. Lessons typically run from Monday-Sunday. Unless otherwise indicated, all lesson content is available at all times and you are free to review it whenever you like. Lab assignments and quizzes, however, have fixed due dates and times, typically **11:30 pm Atlantic time** on their specified due dates (refer to the schedule). You are free to work ahead as far as you like on lab assignments and quizzes, but once the due date has passed, they cannot be submitted (refer to the **Absences and Late Work** section of the **Student and Teaching Team Responsibilities** page of this syllabus).

If you are not located in the Atlantic time zone, use this [Time Zone Converter](#) to determine due dates in your local time.

Exams. The midterm exam is generally scheduled for a weekday evening, within two weeks of the end of Lesson 5. In the Fall and Winter terms, the final exam is scheduled during the [final exam period](#) by the Registrar's Office. [Final exam schedules](#) are usually posted by the Registrar by the 5th or 6th week of term. In the Summer term, the final exam is delivered within two weeks of the course end date.

For more information about exams, see the **Midterm and Final Exams** page of this syllabus.

You can download a complete class schedule containing all fixed due dates and deadlines from the 'Handouts' sidebar on this page [*as it appears in Brightspace*]. A combined schedule with dates relevant to both BIOL 1021 and BIOL 1020 is also available, for the convenience of students who are taking both courses concurrently. **PLEASE NOTE: Weekly tests and assignments are due at the same time in BIOL 1021 and BIOL 1020. If you are taking both courses concurrently, it is your responsibility to plan your work so that you make your submissions for both courses by the posted deadlines.**

Please also note that the PDF schedule attached to this page [*as it appears in the course website*] is the intended, finalized schedule for the course. If you find any discrepancies in due dates elsewhere on the course website, including the Brightspace Course Schedule or within lesson content, the PDF schedule takes precedence.

Course Schedule Summary

This list is an overview of the course schedule. For full details, see the course website.

Lessons (online; 12 in total, including the Orientation Lesson): Monday to Sunday; Orientation begins September 3rd

Lectures: n/a (recordings posted online)

Quizzes (online): due most Wednesdays at 11:30 pm, starting September 18th

Labs (online): due alternate Mondays at 11:30 pm, starting September 16th

Midterm Exam (on campus): October 10th, 5:00-6:30 pm, Scotiabank Auditorium; exams in Truro by arrangement with instructor

Final Exam (on campus): to be scheduled during the final exam period by the Registrar's Office

Assessment

Your final mark in this course is based on several components, and there is considerable flexibility in the marking scheme. See below for full details.

Grading Scheme

Assessment Component	Marks	Details
Quizzes	5	- eleven quizzes at 0.5 marks each; lowest mark dropped - two attempts per quiz; higher score counts
Lab Assignments	18	- six lab assignments at 3 marks each
Midterm Exam	20	- covers Lessons 2-5 inclusive (Unit I) - multiple choice format - 1.5 hours
Final Exam	55	- covers Lessons 6-12 (Units II and III; ~89%) and all labs (~11%) - multiple choice format - 3 hours
Discussion Board Participation (Required)	2	- each student is required to post to the Discussion Board twice during the term
Discussion Board Participation (Bonus)	3	- bonus marks are awarded at the end of each Unit for qualifying Discussion Board posts
Total	100 + 3	

Quizzes

Each lesson includes an online quiz with 30 multiple-choice questions and a 45-minute time limit. The questions are randomly selected from a testbank; each quiz and each attempt is unique to each student. Quizzes are automatically graded, and you will see your score immediately upon submitting the quiz. You will get two attempts at each (graded) quiz, and the higher score will count toward your final grade. Each lesson quiz includes 5 questions from each of the previous lessons, reaching back to a maximum of three lessons, to help you recall material that came previously.

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 style to the graded quizzes, but you get unlimited attempts at them, and your scores do not count toward your final grade. Extra Practice Quizzes are available automatically shortly after the deadline for a graded quiz passes, with the exception of the Extra Practice Quizzes for Lessons 5 and 12, which are released at the same time as those for Lessons 4 and 11, respectively (so that you have more time to use them to prepare for the midterm and final exams).

Discussion Board Participation

Each week, a small number of students will be assigned to post to the Discussion Board, either to start a thread on a course-related topic of their choosing, or to reply to a thread started by someone else. Posts

will be graded according to a rubric. In addition, all content-related posts made to the Discussion Board at any time by anyone are eligible for bonus marks. For full details, see the **Discussion Board Participation** module in the Table of Contents of the course site.

Lab Assignments

Labs vary in style from problem solving to online investigations and activities that will take you away from the computer. Web-based tools are incorporated where appropriate. Detailed information about each lab is provided in the **Labs** module in the Table of Contents of the course site.

Exam Marking Scheme and Adjustments

The midterm and final exams consist of approximately 40% factual-recall questions and 60% application/comprehension questions. All questions are weighted equally.

If your mark on the final exam is better than your mark on the midterm exam (both expressed as a percent), then your midterm exam mark will be raised by the following formula:

$$\text{Adjusted midterm grade (\%)} = [\text{original midterm grade (\%)} + \text{final exam grade (\%)}] / 2$$

In other words, the adjusted midterm exam mark is the average of the original midterm exam mark and the final exam mark. This adjusted midterm exam mark will replace your original midterm exam mark in the final grade calculation. Please note that your midterm exam mark will be adjusted **only if** you have written the midterm exam. If you have no valid and documented reason for missing the midterm exam, your midterm exam mark will remain at 0*.

Final Grade Conversion

We use the Dalhousie Common Grade Scale; i.e.:

<u>Final Grade</u>	<u>Final Mark (percent)</u>	<u>Final Grade</u>	<u>Final Mark (percent)</u>
A+	90 to 100	C+	65 to 69
A	85 to 89	C	60 to 64
A-	80 to 84	C-	55 to 59
B+	77 to 79	D	50 to 54
B	73 to 76	F	0 to 49
B-	70 to 72		

* provided you remain enrolled in the course

Student and Teaching Team Responsibilities

It's important to be clear about our expectations for the course; if you have any questions, as always, feel free to contact the instructor.

Participation

This is a flexible but highly structured course. You are expected to check in frequently and submit work on a weekly basis. Taking a course online is not necessarily easier or faster than taking it in a regular 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. We think of it as a "work at your own *place*" (rather than a "work at your own *pace*") course.

As a student, you are **expected** to:

- submit all assignments and quizzes by the posted deadlines
- log on several times per week to check for messages and announcements
- read and study the assigned readings for each lesson
- review the online content for each lesson. In some lessons, supplementary materials and instructions **for which you are responsible** are included in the online content for the lesson, but do not appear in the textbook
- contact the instructor as instructed to make alternate arrangements for exams (if applicable; see **Midterm and Final Exams** in this syllabus).

And you are **encouraged** to:

- contribute to the Discussion Board by posting questions, comments, ideas, and responses to other students' questions, comments, and ideas
- provide feedback on your learning experience by way of a Student Rating of Instruction questionnaire that will be offered near the end of term

Each week you can expect to spend:

- 1-2 hours reading online content
- 3-5 hours on textbook readings
- 2-4 hours preparing assignments
- up to 1.5 hours on graded quizzes (quiz submission, not preparation)
- time reading and responding to discussion posts (variable)
- time viewing recorded lectures (variable)
- time on Extra Practice Quizzes (variable)

In other words, schedule 7-13 hours per week for this course. 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.

Absences and Late Work

Labs and quizzes are not normally accepted late for any reason, including temporary illness, personal travel, and user-end technical difficulties (see *The Computer Ate My Homework!*, below). Instead of offering 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.
- You can take advantage of **Mulligan Day** (below) if you miss a lab assignment.
- There are bonus marks available for posts to the Discussion Board.

IMPORTANT: All submissions are time stamped according to the Brightspace server's clock, which is set to Atlantic Time. If you are taking this course from another time zone, please factor in the time difference accordingly when submitting your work. We strongly recommend that you **DO NOT WAIT** until a few minutes before an assignment or quiz is due to attempt to submit it. If your watch or your computer's clock is even a few minutes out of sync with the Brightspace server, you risk missing the deadline.

If you are not located in the Atlantic time zone, you can use this [Time Zone Converter](#) to confirm the time difference between your time zone and Atlantic time.

You are expected to make every reasonable effort to submit your work on time, and to accept the loss of marks in the event that you cannot. Alternate arrangements for submitting class work may be considered in the following cases:

- You experience a chronic illness or injury that prevents you from completing your work over an extended period of time (i.e., longer than three consecutive days). In this case you should contact the instructor at **biol1020@dal.ca** as soon as possible during or after your absence; a medical certificate may be required.
- An anticipated extended absence (such as for medical treatments or professional/academic obligations), in which case you should notify the instructor in advance. Normally, you will be expected to submit your work early whenever possible, but alternate arrangements may be considered depending on the circumstances.
- You have a physical or learning disability that affects your participation in the course. For more detailed information, see the **Academic Accommodations and Students With Disabilities** page of this syllabus.

In the (rare and unlikely) event that a Brightspace outage affects your access to the course, extensions on tests and assignments may be granted, depending on the timing and duration of the outage.

Student Declaration of Absence

A Student Declaration of Absence form will be accepted in lieu of medical certification for short-term illness, and is required in this course only when the absence results in missing the midterm exam. In other words, a Student Declaration of Absence is not required for missed quizzes or labs. For more information, see the **Makeup Exams and Special Arrangements** page of this syllabus.

Mulligan Day

In this course we have a "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.

"The Computer Ate My Homework!"

In our experience, the majority of technical problems that students experience are user-end (rather than server-end) and can be prevented. To avoid having to say "the computer ate my homework", you are expected to take the following measures:

1. **Ensure that you have regular access to a stable, high-speed internet connection for the purposes of taking this course.**
2. **Upgrade your browser and plug-ins to the recommended versions.**
3. **Install anti-virus software.** Dalhousie provides McAfee virus protection (NetID and password required) to all students and staff free of charge.
4. **Back up your work at a remote location.** Possibilities include flash drives or cloud-based services such as Dropbox or Office 365.
5. **Arrange for access to an alternate computer in the case of emergencies.** Ensure in advance (if possible) that your alternate computer is configured with the required software for the course.

If you're having technical problems, let us know as soon as possible -- we can help!

Netiquette

Communication over discussion boards has its pros and cons. One of the big pros is that you can post questions and comments any time you like. One of the big cons is that the tone or intent of a message can be misinterpreted. To keep the lines of communication open and flowing nicely, all posts to the Discussion Board should observe the following points of 'netiquette':

1. **Informative subject lines.** Detailed subject lines help everyone follow the threads that are of interest to them. Always include the lesson/assignment number if applicable and at least one or two relevant key words. For example:
 - 'I have a question' → poor subject line
 - 'Lesson 3: question about mitochondria' → much better!
2. **Avoid duplication.** Before posting your question, take a few moments to scan the subject lines of the posts that are already there. It's possible that your question has been asked already (another reason to use informative subject lines!); if it has, you may find an opportunity to engage with a classmate, or at the very least save yourself some time.

3. **Correct grammar, spelling, and punctuation.** The Discussion Board is an academic forum; you are expected to write in complete sentences and express your thoughts as clearly and respectfully as possible. Restrict your use of Caps Lock to emphasizing individual words or creating titles or subheadings in your message. (THE USE OF ALL CAPITAL LETTERS IN A DISCUSSION POST IS THE ONLINE EQUIVALENT OF SHOUTING!)
4. **References** (where appropriate). Give textbook page numbers, class site page references, etc., when you mention specific items from the pages in question. In more open-ended discussions, be prepared to cite sources in support of your arguments. Include active hyperlinks to your sources whenever possible.

Dropping the Course

If you want to drop the course, you must do so in person at the Registrar's Office, or via [Dal Online](#). **Failure to participate does not constitute withdrawal from the course!** If you discontinue participation in the course without dropping it formally, you will receive a final grade of 'INC' (for 'incomplete'), which will affect your GPA. Failing to drop the course by the relevant deadlines for each term also carries implications for tuition refunds.

Teaching Team

The instructor and teaching assistants in this course are here to support your learning and help you in any way we can. You can expect us to respond to private messages within 24 hours during the week (Monday-Friday), and return your assignments to you within one week of submission. We may not necessarily respond to posts on the Discussion Board within 24 hours -- depending on the thread, we may wait a little longer to give as many students as possible a chance to respond and participate.

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.

Midterm and Final Exams

For most students, the midterm and final examinations are traditional pen-and-paper exams, delivered on campus. The questions on the exams are very similar to those on the graded quizzes and the Extra Practice Quizzes. Look for a recorded presentation on exam design and preparation tips in the course site.

Off-campus exams are not offered under any circumstances. You are expected to write your exams **in person, on campus** (Halifax or Truro), **at their scheduled times** (extenuating circumstances excepted, see **Make-Up Exams and Special Arrangements** and **Deferred Exams - Summer Term Only** below).

There are NO EXCEPTIONS to the requirement to write the exams on campus. If you are unable to travel to Halifax or Truro, or your prospective proctor in Truro is unable to meet the conditions below, then you will not be permitted to write the exams. You may have to reconsider taking the course, or deferring it to a future term when you can write the exams on campus.

Proctored Exams – Agricultural Campus (Truro, NS) Only

If it is more convenient for you to travel to Dalhousie's Agricultural Campus Truro, you may write your exams under the supervision of any faculty or staff member associated with the Faculty of Agriculture, subject to the conditions below (you may also choose to travel to Halifax to write your exams if you wish):

- The proctor must agree to be physically present with you in the testing room for the duration of the exam.
- The proctor must be fluent in English.

The Faculty of Agriculture's [Enrolment Services Centre](#) provides invigilation, as does their [Student Success Centre](#) (for students who require academic accommodations).

Proctor Information Required. If you are eligible to write a proctored exam, it is your responsibility to locate a suitable proctor and notify the instructor. Be prepared to supply the following information, in the format requested by the instructor (to be announced; varies by term):

- the proctor's full name
- the proctor's job title or affiliation with Dalhousie University
- the proctor's Dalhousie e-mail address
- the proctor's Dalhousie telephone number
- the date you have arranged to write the exam (which may be on the scheduled exam date or one day before or after)
- the time you have arranged to write the exam

This information is due to the instructor at least two weeks prior to the scheduled exam date, and must be submitted for each exam that you take in Truro, even if you use the same proctor for both exams.

Make-Up Exams and Special Arrangements

You are expected to make every reasonable effort to attend the exams at their scheduled times. 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. In this course, except where noted, labs and quizzes cannot be submitted late or made up for any reason, including short-term illness (see **Grading Scheme** and "**The Computer Ate My Homework!**" on the **Student and Teaching Team Responsibilities** page of this syllabus for full details).

There are no automatically scheduled make-up exams for the midterm and final, but make-ups and alternate arrangements may be considered at the instructor's discretion in cases of sudden illness or injury, or anticipated absences for medical, professional, or academic commitments. Any request to write a make-up exam must be accompanied (or followed) by appropriate documentation and meet the conditions outlined below.

Sudden Illness or Injury. If you are ill or injured prior to the exam and your illness/injury prevents you from writing it at the scheduled time, you must: (1) contact the instructor via e-mail (biol1020@dal.ca) as soon as you are able and (2) submit a [Student Declaration of Absence](#) form via Brightspace within 3 days of the last day of your absence. Please note that Student Declarations of Absence are not accepted for final exams.

For long-term absences (i.e., longer than 3 days), or for an absence of any duration that affects your ability to write the final exam, contact the instructor via e-mail and provide medical or other documentation as appropriate. For more information see the university's policy for [Missed or Late Academic Requirements due to Student Absence](#).

Anticipated Absences. If you have a scheduled medical procedure, professional commitment, or academic commitment (including varsity sports) that conflicts with the exam, you should notify the instructor as soon as possible in advance, and supply documentation from a doctor/your employer/coach.

Travel. **Personal travel plans are NOT considered a valid reason for requesting to write a make-up exam**, and you are asked not to make travel plans, particularly for the end of term, until the [final exam schedule](#) has been posted by the Registrar's Office (normally by the 4th-5th week of term). For more information, refer to the university's [Policy for the Scheduling of Courses/Examinations](#) (see 'Requests for An Alternative Final Examination Time').

Deferred Midterm Exams – Summer Term Only

Students who plan to spend the summer in or near Halifax or Truro are expected to write the midterm exam at its scheduled time following Unit I. Recognizing however that the Summer term is qualitatively different from the Fall and Winter terms and that many students want or need to leave Halifax for various reasons, we offer a deferred midterm exam at the end of the course and makeup exams (for both the midterm and final exam) during September.

The deferred midterm and scheduled makeup exams are offered to those students for whom it would present a significant hardship to travel to campus twice during the summer, or before September. The

deferred midterm is NOT intended as an option for students located near Halifax or Truro who are unable to write the midterm at its scheduled time for unanticipated reasons (such as illness) - in this case, students may request a makeup exam (see **Make-Up Exams and Special Arrangements**, above). For unanticipated circumstances that arise prior to the scheduled final exam, a make-up exam may also be requested, subject to the same conditions as described above.

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

Midterm and Final Exams – Bottom Line(s)

The default expectation is that students will make every reasonable effort to attend the midterm and final exams at their scheduled times: following Unit I and at the end of the course, respectively. Students who expect to do so do not need to make any special arrangements or report their intentions to the instructor - they should simply show up at the designated time and place.

Students who will be writing proctored exams in Truro (Fall, Winter, and Summer terms) and students who will be writing a deferred midterm exam at the end of the course (Summer term only) must make arrangements with the instructor by the appropriate deadline(s).

Students who encounter unanticipated reasons for missing a midterm or final exam may request to write a make-up exam, which is normally arranged for a time close to the originally scheduled exam. In the Summer term, such students will **not** automatically be permitted to write the deferred midterm 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 show up at a midterm or final 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 the rules around writing the exams, please contact the instructor as early in the term as possible.

Academic Accommodations and Students With Disabilities

Students may [request accommodation](#) as a result of barriers related to disability, religious obligation, or any characteristic included in the Nova Scotia Human Rights Act. Students who require academic accommodation for either course participation or the writing of tests, quizzes, and exams should contact the [Student Accessibility Centre](#) (Halifax) or the [Student Success Centre](#) (Truro) prior to or at the outset of each academic term.

See also Dalhousie University's [Student Accommodation Policy](#).

Academic Integrity and Student Code of Conduct

Dalhousie Policies and Guidelines

The information in this section has been adapted from Dalhousie's Academic Integrity [Sample Syllabus Statement](#) (PDF).

At Dalhousie University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect. 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.

What does academic integrity mean? At university we advance knowledge by building on the work of other people. Academic integrity means that we are honest and accurate in creating and communicating all academic products. Acknowledgement of other people's work must be done in a way that does not leave the reader in any doubt as to whose work it is. Academic integrity means trustworthy conduct such as not cheating on examinations and not misrepresenting information. It is the student's responsibility to seek assistance to ensure that these standards are met.

How can you achieve academic integrity? We must all work together to prevent academic dishonesty because it is unfair to honest students. The following are some ways that you can achieve academic integrity; some may not be applicable in all circumstances.

- Make sure you understand Dalhousie's [policies on academic integrity](#).
- Do not cheat in examinations or write an exam or test for someone else.
- Do not bring prohibited items (as defined by the instructor; may include calculators, notes, cell phones, etc.) to exams; possession of prohibited items during an exam is an academic offense whether or not you actually use them.
- Do not falsify data or lab results.

- Be sure not to **plagiarize**, intentionally or unintentionally. For example:
 - clearly indicate the sources used in your written or oral work, including computer codes/ programs, artistic or architectural works, scientific projects, performances, web page designs, graphical representations, diagrams, videos, and images
 - do not use the work of another from the Internet or any other source and submit it as your own
 - when you use the ideas of other people (paraphrasing), make sure to acknowledge the source
 - do not submit work that has been completed through collaboration or previously submitted for another assignment without permission from your instructor or professor
- Do not share files (such as documents, spreadsheets, etc.), in electronic form or otherwise, unless instructor permission is obtained. If file sharing leads to plagiarism/copying, in part or in whole, in lab reports, assignments, essays, projects etc., then the student who sent the file will be held liable just as the student who received and misused the file. The penalties for both parties -- the one who plagiarized/copied as well as the one who sent the file (regardless of whether there was any intention to allow copying) -- will be quite severe.
- Do not write up assignments collaboratively unless explicitly permitted to do so by the instructor. If data collection is required, each student should collect their own data as instructed by the assignment. While collaborative learning may be encouraged, the collection of data and writing of assignment answers, lab reports, etc. should be done independently. Evidence of 'collaboration' in writing will be treated in a way similar to plagiarism / copying from one another and to file sharing and copying.

These examples should be considered as a guide only and not an exhaustive list.

What will happen if an allegation of an academic offence is made against you? Your instructor is required to report every suspected offence. To be clear: **The instructor has NO discretionary power when it comes to cases of suspected plagiarism; they MUST report any suspected infraction, regardless of how much (or little) the assessment in question is worth.** The full process is outlined in the [Academic Discipline Process Flow Chart](#) (PDF) and includes the following:

- Each Faculty has an Academic Integrity Officer (AIO) who receives allegations from instructors.
- Based on the evidence provided, the AIO decides whether to proceed with the allegation, and you will be notified of the process.
- If the case proceeds, you will receive a PENDING grade until the matter is resolved.

If you are found to have committed an academic offence, a penalty will be assigned ranging from a warning, to failure of the assignment or failure of the course, to expulsion from the University. Penalties may also include a notation on your transcript that indicates that you have committed an academic offence. Such a notation is not to be taken lightly -- it is a serious liability should you decide to pursue graduate studies, professional school (such as medicine, law, or dentistry), or any program or job that requires a copy of your transcript as part of the application process.

In this course, we have reported cases that involved assignment answers copied from other students (including students from previous terms), allowing assignment answers to be copied and submitted by others, submitting work that had already been submitted for the course in a previous term (self-plagiarizing), copying phrases from source material without paraphrasing and/or correct citation, submitting images copied from the Internet without attribution, collaborating on data collection,

possession of prohibited items during exams, and cheating on exams. **Penalties have included (alone or in combination):**

- a mark of zero for the assignment that cannot be dropped from the final grade
- an official transcript notation
- a letter grade reduction in the final grade
- a mark of zero for the course
- refusal to accept online courses taken at other institutions for transfer credit at Dalhousie
- suspensions of up to 43 months
- expulsion from the University

Where can you go for help? If you are ever unsure about any aspect of your academic work, contact your instructor, professor, or TA for advice. You can also consult the following resources:

- Dalhousie's [Academic Integrity](#) website: links to policies, definitions, online tutorials, tips on citing and paraphrasing
- [Writing Centre](#): assistance with learning to write academic documents, reviewing papers for discipline-specific writing standards, organization, argument, transitions, writing styles and citations
- [Dalhousie Libraries](#): workshops , online tutorials, citation guides, Assignment Calculator, RefWorks
- [Student Advocacy Service](#): assists students with academic appeals and student discipline procedures
- [Senate](#): the senior academic governing body of the university



Editorial comment from Jennifer Van Dommelen (primary instructor in the course): If you are ever tempted to cheat on your work for the sake of making a deadline or achieving a higher grade, please just walk away from the assignment. You are far better off not submitting it and taking the loss of marks than taking the penalty that will apply if you are caught. **It is simply not worth the risk.** If you need help with managing your studies, Dalhousie offers programs in study skills, including discipline-specific coaching, tutoring, and other resources. Your instructors are also willing to work with you to help you avoid academic integrity violations.

Academic Integrity Online Module

Students enrolled in 1000-level courses (including this one) may be invited to complete an online [Academic Integrity Module](#), offered through the [Writing Centre](#). The Academic Integrity Module is a separate "course" on your Brightspace course list.

Student Code of Conduct

Dalhousie University has a [student code of conduct](#), and it is expected that students will adhere to the code during their participation in lectures and other activities associated with this course. In general: "The University treats students as adults free to organize their own personal lives, behaviour and associations subject only to the law, and to University regulations that are necessary to protect

- the integrity and proper functioning of the academic and non – academic programs and activities of the University or its faculties, schools or departments;
- the peaceful and safe enjoyment of University facilities by other members of the University and the public;
- the freedom of members of the University to participate reasonably in the programs of the University and in activities on the University's premises;
- the property of the University or its members."

University Policies and Statements

This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate. (Some of these policies are elaborated upon elsewhere in this syllabus.)

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

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>

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

https://www.dal.ca/academics/important_dates.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 less) 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. Only 2 separate Student Declaration of Absence forms may be submitted per course during a term (Note: faculty, college, school, instructor or course-specific guidelines may set a lower maximum). **Read more:**

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

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

University Grading Practices

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

Learning and Support Resources

Academic Supports

Copyright Office: <https://libraries.dal.ca/services/copyright-office.html>
E-Learning website <http://www.dal.ca/dept/elearning.html>
Fair Dealing Guidelines <https://libraries.dal.ca/services/copyright-office/fair-dealing.html>
Library: <https://libraries.dal.ca/>
Studying for Success: https://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

Advising

Aboriginal Student Centre: https://www.dal.ca/campus_life/communities/indigenous.html
Biology Advising: biology.advising@dal.ca
Black 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
General Advising, Halifax: https://www.dal.ca/campus_life/academic-support/advising.html
General Advising, Truro: <https://www.dal.ca/about-dal/agricultural-campus/student-success-centre/academic-support.html>
Science Program Advisors: <https://www.dal.ca/faculty/science/current-students/academic-advising.html>

Other Supports and Services

Ombudsperson: https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html
Student Advocacy: dsu.ca/dsas
Student Health and Wellness: https://www.dal.ca/campus_life/health-and-wellness.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>