
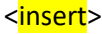
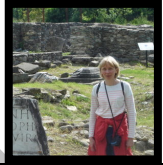


Faculty of Science Course Syllabus
BIOL 2020.03 Cell Biology
FALL 2021

Teaching Team:

Mindy McCarville	Dr. Katy Garant	Dr. Laura Tatar
		
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*For us to be as efficient as possible, please do **not** 'cc all of us on emails!
 Address it to the one person you think most appropriate (i.e. Mindy for "lecture stuff" and Dr. Garant for "lab stuff").*

Course Delivery and Overview: Biology 2020 introduces you to the eukaryotic cell. Lecture content describes major cell components and activities at ultrastructural and molecular levels. The concept of the cell as an integrated structural, functional unit is developed. Lab content considers the experimental approaches for studying cell biology and ways that this information is communicated.

We know that Things are *Not* Actually Back to Normal.

This reality has shaped our philosophy while designing the course for this academic year:

Lectures: Mindy will deliver live lectures, MWF, from 9:35-10:25 in the Potter Auditorium in the Rowe building. She will also post comprehensive, captioned, narrated videos for each upcoming week's content on Brightspace. *If you do not feel comfortable attending lectures in person for whatever reason, you will still be able to succeed in the lecture quizzes, midterm, and exam by studying from the videos alone.* To be absolutely clear, Mindy would love to see you in-person (she has missed it terribly this past year), but is encouraging you to make the choice that feels right to you. We will support you either way. Note that we will have ~325 students enrolled in the course, and the Potter Auditorium seats 400.

Labs: There are five in-person labs term, and each will run at half-capacity. This means there will be two students at each of six benches. The small lab size will provide a more comfortable, spacious environment, and will be better for individual instruction. Dr. Garant will present the lab theory as a series of pre-lab videos on Brightspace. The in-lab activities will focus on practising fundamental molecular techniques, with ample opportunity to ask questions. Consult with the "What's Happening in BIOL 2020" document to know the precise days and times you are expected to be in lab.

Course Goals and Objectives:

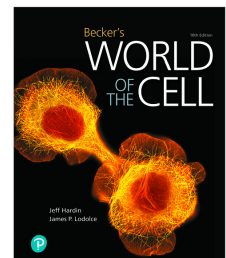
BIOL 2020 will build on the following knowledge/skills:

- Describe the process by which carbohydrates, lipids and proteins are assembled from monomers and identify their functional roles in the eukaryotic cell.
- Describe the structure and function of the organelles found in eukaryotic cells, demonstrating an appreciation for the overall architecture of the cell.
- 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.
- 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.
- Recall the steps relating to cell division, understanding what cellular processes happen at each step, and describe the control mechanisms for the 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.
- Search and locate appropriate primary literature; generate proper citations in CSE format.
- Demonstrate pipetting proficiency.
- Describe how cells can be maintained *in vitro*.
- Demonstrate the basic steps to align a compound microscope.
- Calculate cell concentration using a hemocytometer.
- Design an experiment using replicates and controls.
- Prepare a protein dilution series.
- Describe how protein can be extracted from cells and how protein concentration can be calculated.
- Calibrate a spectrophotometer.
- Construct a standard curve to determine sample concentration.
- Present data in the form of a table and graph with proper formatting.
- Describe protein electrophoresis and western blotting theory.
- Interpret western blotting data.
- Describe how immunofluorescence can be used for subcellular localization of proteins.

Course Prerequisites: 1010 or BIOL 1020 or SCIE 1505 or equivalent (minimum grade of C)

Suggested Textbook:

We will be using **Becker's World of the Cell (10th ed) by Jeff Hardin and Gregory Paul Bertoni** (published by Pearson). Older editions of the book are suitable if you can find one! Important note: this is a great book and I used it to write the lectures. However, I have listed it as "suggested", meaning that I think it is possible for many students to be successful in the course without using the textbook – it is up to you!



Technical Requirements:

You will need reliable internet access, with access to software for writing, presenting, graphing, etc. You will need a laptop, or robust tablet with audio and video capabilities (speaker, microphone, and webcam). Your cell phone alone will not be sufficient. All Dalhousie students can download the entire Microsoft Office 365 Suite (full version) from Dalhousie for free. For our course, we recommend that you have the full version. If you want to access the online apps, click the ☰ in the top left-hand corner. Keep in mind that the online apps may lack some of the features normally available in the full version of Microsoft Office. We also recommend that you familiarize yourself with other free programs, including Zoom and Adobe Acrobat Reader DC.

Overview of Course Assessments:

(please see the “What’s Happening in BIOL 2020” document for a detailed weekly breakdown.)

Component	Due Date (AST – Halifax time!)	Value	Notes
Weekly Lecture Quizzes	Sundays at 11:59 pm	5% total	<ul style="list-style-type: none"> Twelve quizzes, each worth 0.5%. The lowest two grades will be dropped.
Weekly Lab Quizzes	Your lab day, prior to the time that the “a” group begins.	5% total	<ul style="list-style-type: none"> Five quizzes, each worth 1%. No quiz will be dropped.
Lab Worksheets	Your lab day.	10% total	<ul style="list-style-type: none"> Paper copy of the worksheet is to be submitted before you leave the lab. Exceptions are Labs 1 and 3; some work is to be submitted into folders on Brightspace by 11:59 pm.
Midterm (Online!)	Monday, Nov 1 st 6:00 pm - 8:00 pm	20%	<ul style="list-style-type: none"> The test will be a combination of multiple choice, multi-select, and short answer questions. The test will include content up to the end of Week 8. Movement through the test will be forward-moving only; you cannot jump backwards to a previously submitted question.
Final Lab Project	Friday, Nov 19 th at 11:59 pm	10%	<ul style="list-style-type: none"> See full description on Brightspace.
Lab Test	Tuesday, Dec 7 th (Time TBA)	10%	<ul style="list-style-type: none"> Format TBA.
Final Exam	To be scheduled by the Registrar’s Office	40%	<ul style="list-style-type: none"> Format TBA. Cumulative; including lecture content from all weeks.

Policy for Missed Assessments:

Assessment	What happens if you miss it?
Lab Quizzes	<ul style="list-style-type: none"> You will get zero on the quiz unless it is a long-term absence (<i>see Note 1 below</i>).
Lecture Quizzes	<ul style="list-style-type: none"> You will get a zero on the lecture quiz. However, the <u>two</u> lowest quiz marks will automatically be dropped.
Lab Assignments & Final Lab Project	<ul style="list-style-type: none"> Final Lab Projects are due on Friday Nov 19th by 11:59 pm. There is a 48-hour grace period for projects. There will be no extensions given (<i>see Note 2 below</i>). Projects submitted on Monday Nov 22nd (or later) are subject to a 10% late penalty per day (i.e., if your project is out of 100 points, each day late is a 10 pt deduction). December 1st is the last day to submit a project.
Midterm	<ul style="list-style-type: none"> You must contact Mindy McCarville <u>prior to the test</u>, along with the reason for not writing the test at the designated time. In the case of a valid excuse, a make-up test will be scheduled within 7 days of the original date. If you cannot write the make-up test on the scheduled date due to a valid excuse, the weight of the midterm will be moved to the final exam.
Final Exam	<ul style="list-style-type: none"> You must contact Mindy McCarville <u>prior to the exam</u>, along with the reason for not writing the exam at the designated time. In the case of a valid excuse, a make-up exam will be scheduled within 7 days of the original date. If you cannot write the make-up examination on the scheduled date due to a valid excuse, a second and final opportunity to write the exam will be given.

Note 1: “Long-term absence” refers to absences of more than three consecutive days due to major or chronic physical or mental health conditions, or other extenuating circumstances such as caregiving duties; immediate family illness, injury or death; involvement in an accident; legal proceedings; being a victim of a crime, domestic or intimate partner violence.

Note 2: if you have an **Accessibility Plan** that allows for coursework deferrals or deadline extensions, you must contact your instructor in advance to implement your plan.

Note 3: Technical problems (files mysteriously disappearing, submitting the wrong file, blank files, not backing up your work, etc.) are not grounds for an extension. On Brightspace, always review the file you uploaded. If something looks strange, email Dr. Garant ASAP!

Technical Problems During the Online Midterm:

Should you encounter an internet problem during the midterm (i.e. screen freezes, internet is down or a weak signal), you must:

- Immediately take a screen shot of your screen (with the error message, spinning wheel of death, or other issue) using another electronic device. Ensure you capture the date and time.
- Immediately contact the Instructor via email, attaching the screenshot. The Instructor will help to resolve the issue and will use the timestamp to determine if any allowance will be made in terms of time.

Communication:

Primary communication between Instructors and students shall be conducted via the @dal.ca email system. It is your responsibility to frequently check your @dal.ca email account.

We are also happy to schedule individual meetings, either in-person or video, upon request.

Email Netiquette: We will do our best to respond in a timely manner. However, in an effort to model a healthy work/life balance, we will generally not respond to emails after 5:00 pm on Monday-Friday, or on weekends.

Please address all email concerns to Mindy for lecture-related content or Dr. Garant for lab-related content. The TAs are not available to answer emails. Email tips:

- Remember that we have access to everything you submit on Brightspace, so there is no need to attach large files in an email.
- Put an appropriate subject line, provide your first and last name, and include key information to reduce unnecessary back and forth replies.

Adjusting your Mindset (as you become Capable 2nd Year Biologists):

You are fully capable of succeeding in this course. You would not have gotten here otherwise. With that in mind, we want to provide some advice on expectations:

1) We are training you to become independent thinkers and confident adults. Avoid asking us (or your TA) to hold your hand during every step of your journey through second year – we will talk about cell biology with you for as long as it takes for you to understand concepts, but we cannot ‘pre-mark’ worksheets or assignments as we need to be fair to the other students in the class. Challenge yourself to think critically, building upon the knowledge you have amassed up to this point and be confident in your preparation when completing assessments. In other words, you can totally do this! 😊

2) Effort-exerted and time-spent does not equate success. This is a frustrating lesson, but it is true. It does not matter if you spend 10 hours on an assignment if you ultimately did it incorrectly. It also does not matter if you spent hours re-writing all your lecture notes if you ultimately did not retain or process any of the content. Work smarter, not longer! (Talk to us if you want to brainstorm study strategies. We want to help!) At the end of the day, marks are earned based on correctness and not based on the mark you feel you deserve.

Assessment Re-evaluation:

As mentioned above, marks are awarded based on correct responses. If you notice an error in marking (i.e., the rubric is filled out incorrectly, the TA mentioned that you were missing something, but you actually included it, etc.), please notify Dr. Garant and your mark will be adjusted accordingly.

If you have specific and valid concerns that your assignment was marked incorrectly and are requesting a full re-evaluation of an assessment, please note that your mark may stay the same or it may increase/decrease. Requests for re-evaluation must occur within 7 days of releasing the grade, and only those requests with legitimate concerns will be addressed.

Academic Integrity:

Contents of lab assignments and projects, feedback, Brightspace quizzes, the midterm, the Discussion Boards, and the Final Exam are all property of BIOL 2020 and are strictly confidential. You may not share the contents of these assessments with anyone or on 'homework sharing' websites, (e.g., Chegg, Course Hero, Studocu, etc.)

All lab and lecture quizzes, and the final exam, are Open book/notes. This means you are welcome to use our class (Brightspace) resources. You are not allowed to access other internet sites (e.g., Chegg, Google, YouTube, etc.)

Collaboration during quizzes, midterm, and final exam is not permitted. By accessing a quiz, midterm or exam, you are promising that the work submitted is solely of your own efforts.

Note: The final lab project will be assessed with Urkund (Dalhousie's plagiarism detection software). Please remember that you cannot copy/paste any text from your article into your poster.

We take academic integrity very seriously. If there is suspicion of even a minor academic offence, we will engage Dalhousie's academic integrity process and forward the case to a Faculty of Science Academic Integrity Officer.

Copyright Notice:

All course materials are designed for use as part of BIOL 2020 at Dalhousie University and are the property of the course Instructors. This includes lecture slides and videos, lab-related documents, lab slides and videos, quizzes, assignments, and examinations. These documents are solely for your learning and evaluation in BIOL 2020. It is an academic offence to share these materials outside of this course space in such a way that others might gain an unfair advantage, and students who do so may be subject to University discipline. Copying this material for distribution may also lead to a violation of Copyright law.

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

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