

Introductory Biochemistry for Nursing Students

BIOC 1420

Department of Biochemistry & Molecular Biology

Winter 2024

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

Kathryn Vanya Ewart, Ph.D. (vewart@dal.ca)

Course Time and Location

Three-hour sessions (each including 2 consecutive lectures) will be held on Wednesdays, from 11:35 a.m. until 2:35 p.m. in the Tupper Building Theatre B (large amphitheater in Link section of the Tupper Medical Building).

Important notes

Specialty course

This course is designed specifically for students in the BScN and BHSc programs. It cannot be used as a prerequisite for any other biochemistry course and it is not normally accepted by Faculties of Dentistry, Pharmacy or Medicine in fulfillment of the requirement of a biochemistry course for admission.

Course Exclusions

This class is restricted to students in the BScN and BHSc programs. Other students may register if permitted by the instructor.

Student Resources

Weekly office hours will be held on MS Teams at 3:00-5:00 p.m. on Wednesdays. Questions outside of class and lab time can be asked directly by email or meetings at other times can be requested by email. Meetings can be held in person within regular working hours in Tupper 9S. Meetings can also be held on MS Teams during regular working hours as well as on evenings and weekends.

Course Structure

Learning Objectives

This course was developed to provide students with foundational knowledge in biochemistry that will support future learning, healthcare delivery and innovation. The university calendar describes the course as follows: “Topics discussed include the structure, biosynthesis and functions of biologically important compounds, enzymes, control of metabolism, genetic engineering and nutrition.”

Course schedule

Month	Date	Item	Topic
January	10th	Lecture 1	Introduction and review of fundamental concepts
		Lecture 2	Proteins
	17th	Lecture 3	The structural and binding roles of proteins
		Lecture 4	Enzymes and their catalytic roles
	24th	Lecture 5	Protein-centered applications
		Lecture 6	Carbohydrates and their roles
31st	Exam 1	Multiple choice exam on lectures 1-6	
February	7th	Lecture 7	Glycogen and glycolysis
		Lecture 8	The tricarboxylic acid cycle
	14th	Lecture 9	The electron transport chain and oxidative phosphorylation
		Lecture 10	Lipids
	21st	Study break	n/a
		Study break	n/a
	28th	Lecture 11	Beta oxidation and lipid metabolism
		Lecture 12	Lipid-centered applications
March	6th	Exam 2	Multiple choice exam on lectures 7-12
	13th	Lecture 13	ATP and cellular energy management
		Lecture 14	Metabolism and nutrition
	20th	Lecture 15	DNA and the transmission of information
		Lecture 16	Transcription, RNA processing and translation
	27th	Lecture 17	DNA-centered applications
Lecture 18		RNA-centered applications	
April	3rd	Exam 3	Multiple choice exam on lectures 13-18

Course Materials

There is no textbook to purchase for this course. Study materials, including the lectures, freely available textbooks and other materials will be provided on Brightspace. Students will also be directed to freely available online resources.

Assessments

Exam	Weight*	Date
Exam 1 (on lectures 1-6)	30% (and raised to 40% if the student's highest mark is on this exam)	Wednesday, January 31 st at 11:35
Exam 2 (on lectures 7-12)	30% (and raised to 40% if the student's highest mark is on this exam)	Wednesday, March 6 th at 11:35
Exam 3 (on lectures 13-18)	30% (and raised to 40% if the student's highest mark is on this exam)	Wednesday, April 3 rd at 11:35

*Please see exceptions below.

For each student who writes all three exams, as expected, the exam with highest mark of the three will be made worth 40% of final mark, resulting in a total out of 100% for the three exams.

In the event that a student misses Exam 1 or Exam 2, there will be no make-up exam. The remaining two exams will then be worth 45% each. Then, the exam with the highest mark of the two will be made worth 55% of the final mark, resulting in a total out of 100%.

Exam 3 must be written to complete the course. If only Exam 3 is written, then it will be made worth 100%. If necessary, a make-up exam will be scheduled for Exam 3. This exam can only be written with the submission of a Student Declaration of Absence within 3 days of the Exam 3 date.

In the event of university closure for weather or other reasons, lectures and/or exams will be rescheduled and/or reformatted as needed. Please monitor the announcements in the course page on Brightspace as needed.

Conversion of numerical grades to final letter grades follows the

Dalhousie Grade Scale

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

Caution with food and drink in the classroom

Although the course is held over the lunch hour, eating is discouraged in the classroom. Students are welcome to bring beverages in covered containers.

University Policies and Statements

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

Internationalization

At Dalhousie, 'thinking and acting globally' enhances the quality and impact of education, supporting learning that is "interdisciplinary, cross-cultural, global in reach, and orientated toward solving problems that extend across national borders." Additional internationalization information can be found at: <https://www.dal.ca/about-dal/internationalization.html>

Academic Integrity

At Dalhousie University, we are guided in all 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 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>)

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>

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. 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

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

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

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.

Faculty of Science

Student Resources and Support

University Policies and Programs

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

http://www.dal.ca/academics/important_dates.html

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

Sexualized Violence Policy:

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

Scent-Free Program:

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

Learning and Support Resources

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>

Student Health & Wellness Centre: https://www.dal.ca/campus_life/health-and-wellness.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

Indigenous Student Centre: https://www.dal.ca/campus_life/communities/indigenous.html

Indigenous Connection: <https://www.dal.ca/about-dal/indigenous-connection.html>

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>

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

International Centre: https://www.dal.ca/campus_life/international-centre.html

South House Sexual and Gender Resource Centre: <https://southhousehalifax.ca/about/>

LGBTQ2SIA+ Collaborative: <https://www.dal.ca/dept/vpei/edia/education/community-specific-spaces/LGBTQ2SIA-collaborative.html>

Dalhousie Libraries: <http://libraries.dal.ca/>

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

Dalhousie Student Advocacy Services: <https://www.dsu.ca/dsas?rq=student%20advocacy>

Dalhousie Ombudsperson: https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html

Human Rights and Equity Services: <https://www.dal.ca/dept/hres.html>

Writing Centre: https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html

Study Skills/Tutoring: http://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html

Faculty of Science Advising Support: <https://www.dal.ca/faculty/science/current-students/undergrad-students/degree-planning.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>

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

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