

BIOC102: BIOCHEMISTRY AND HUMAN HEALTH
COURSE OUTLINE SPRING 2021

INSTRUCTOR

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LECTURE TIME

Tues, Wed, Fri: 8:30-9:20

COURSE OBJECTIVES

The course provides an overview of the basic components and processes underlying human life, how diseases arise when these processes are disturbed, and how drugs work to combat disease. Students will also be introduced to the scientific method and experimental design, and gain experience in critiquing scientific results. By the end of the course, students will have sufficient knowledge to understand and analyze health science publications from the mainstream media.

LECTURE MATERIAL AND FORMAT

Course material is compiled from diverse sources, including current stories in the news, diverse text books and recent scientific publications. Thus, there is no single course textbook. Lecture notes and additional resources (papers) will be posted on the BrightSpace course site prior to the corresponding lecture. You will need your UVic NetLink ID and password to access this information.

Lectures will be **synchronous**, as well as recorded and posted on BrightSpace. Lectures will consist of Powerpoint presentations that include videos and opportunities for student participation. Notes are arranged by topic, and a single topic may span multiple lectures. Not all material will be written down in the notes; some points will be highlighted in a verbal manner. Students are responsible for synthesizing all materials covered in the course presentations.

Exams (Midterms, Final) and quizzes will be completed on BrightSpace. Exams and quizzes will be "open book" such that you can refer to the lecture notes, but internet use is **NOT** permitted. Exams and quizzes **MUST** be completed individually, without consulting or sharing with others. Midterms will be made available as of 8:30 AM at the beginning of class, and must be completed within 50 min from the time of initiation. The availability window for initiating the Midterms will be 24 h, but students are strongly recommended to write the exam during the scheduled class time (8:30 AM-9:20 AM) in order to take advantage of instructor availability for questions. Again, once the exam is open, students have 50 min to complete it. Quizzes run for a shorter time and MUST be initiated and completed within class time.

COURSE CONTENT

<u>Topic</u>	<u>Description</u>
<u>1. Introduction</u>	What is biochemistry?
<u>2. Biomolecules</u>	Overview of the major building blocks within cells, their interactions via chemical bonds, and the influence of water
<u>3. Scientific Method</u>	How scientists approach a problem, and some of the common mistakes made in scientific research.

4. Metabolism	How humans break down molecules to acquire energy and build new molecules; introduction to diseases associated with metabolism.
5. Microbiology and Pathogenesis	Overview of types of micro-organisms and select examples of their roles in health and disease.
6. Cell Biology	Important features and behaviours of cells; stem cells and therapeutic applications.
7. Gene Regulation	Introduction to gene expression and its regulation, including epigenetics; genetic mutations underlying select diseases; genome editing.
8. Cancer Biology	Overview of cellular defects leading to cancer and current treatments.
9. Immunology and disease	Introduction to major players of the immune system; immune responses to SARS-CoV-2; Vaccines; Immunotherapy

ASSESSMENT OF STUDENT PERFORMANCE

(1) Techniques to be used:

Grading of multiple choice and short answer questions on exams and quizzes based on material presented in the course, and assignment of a numerical mark to each question. Exams are based on material covered in lectures (slides, board, discussions) and information posted on BrightSpace.

(2) Evaluation and weighting:

• Midterm 1	(Feb. 2)	25%*
• Midterm 2	(March 10)	25%*
• Quizzes based on Group Discussion of Paper (x 2)	(Feb. 12,) (March 23)	10%** (5% each)
• Final exam	(Set by Registrar)	40%

**The better of the two midterms will contribute 35 marks, while the other will contribute 15*

***No deferrals for missing group discussion/quiz*

(3) UVic Grading Scheme

A⁺ 90 -100	B⁺ 77 - 79	C⁺ 65 - 69	F < 50
A 85 - 89	B 73 - 76	C 60 - 64	N ** < 50
A⁻ 80 - 84	B⁻ 70 - 72	D 50 - 59	

**** N grades**

Students who have completed the following elements will be considered to have completed the course and will be assigned a final grade:

- Midterm 1, Midterm 2, at least one quiz, and the final exam

Failure to complete one or more of these elements will result in a grade of “N” regardless of the cumulative percentage on other elements of the course. An N is a failing grade, and it

factors into a student's GPA as 0. The maximum percentage that can accompany an N on a student's transcript is 49.

- Students are responsible for ensuring that they are properly registered in the course.

DEPARTMENT INFORMATION AND POLICIES

1. The Department of Biochemistry and Microbiology upholds and enforces the University's policies on academic integrity. These policies are described in the current University Calendar. All students are advised to read this section.
2. Cell phones, computers, and other electronic devices must be turned off at all times during live class sessions unless being used for the purpose of connecting and engaging with the class.
3. No recordings of live lectures are permitted without permission of the instructor. Many online courses will be recorded by the instructor for accessibility for students unable to attend. If you do not wish to be recorded, contact your instructor to determine if alternative arrangements can be made.
4. Course materials, such as notes, problem sheets, quizzes, examinations, example sheets, or review sheets, may not be redistributed without the explicit written permission of the instructor.
5. Students are expected to be available for all exams. Instructors may grant deferrals for midterm examinations for illness, accident, or family affliction. Although students do not require documentation, students must contact their instructor and BCMB office (biocmicr@uvic.ca) with the reason for their absence within 48 hours after the midterm exam. The Department will keep a record of the absences. It is the responsibility of the student to ensure all required components are complete, and to arrange deferred exams/assignments with the instructor, which normally should occur within one week of the original exam date.
6. The Department of Biochemistry and Microbiology considers it a breach of academic integrity for a student taking a deferred examination to discuss the exam with classmates. Similarly, students who reveal the contents of an examination to students taking an examination are considered to be in violation of the University of Victoria policy on academic integrity (see current University Calendar). Students must abide by UVic academic regulations and observe standards of scholarly integrity (no plagiarism or cheating). Online exams must be taken individually and not with a friend, classmate, or group, nor can you access notes, course materials, the internet, or other resources without the permission of the instructor. You are prohibited from sharing any information about the exam with others. Use of unauthorized electronic devices and accessing the internet and class material during exams is prohibited unless permission is granted by the instructor. Instructors may use Browser Lockdown Software to block access during classes and exams.
7. Deferral of a final exam must be requested with an Academic Concession form and submitted directly to Undergraduate Records. Deferred final exams for fall term courses will be arranged by the instructor. Deferred final exams or spring term courses will be arranged through Undergraduate Records and must be written before the end of the summer term as stipulated in the University Calendar.
8. Requests for review/remark of a midterm exam must be made within one week of the exam being returned.
9. The instructor reserves the right to use plagiarism detection software or other platforms to assess the integrity of student work.

10. Supplemental exams or assignments will not be offered to students wishing to upgrade their final mark.
11. Anonymous participation in online classes is not permitted without permission of the instructor.

IMPORTANT NOTE ABOUT COVID-RELATED STRESS

The current pandemic is placing added stressors- financial, mental, and physical- on everyone. Your wellbeing is of foremost importance. If you are experiencing difficulties coping, the University has resources to help. Reach out to Counselling Services, the Centre for Academic Communication, or Learning Assistance Program for assistance.

CENTRE FOR ACCESSIBLE LEARNING

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, approach the Centre for Accessible Learning (CAL) as soon as possible in order to assess your specific needs.

<https://www.uvic.ca/services/cal/index.php>

COURSE EXPERIENCE SURVEY (CES)

We value your feedback on this course. Towards the end of term you will have the opportunity to complete a confidential course experience survey (CES) regarding your learning experience. The survey is vital to providing feedback to us regarding the course and our teaching, as well as to help the department improve the overall program for students in the future. When it is time for you to complete the survey, you will receive an email inviting you to do so. If you do not receive an email invitation, you can go directly to your [CES dashboard](#). You will need to use your UVic NetLink ID to access the survey, which can be done on your laptop, tablet or mobile device. We will remind you nearer the time but please be thinking about this important