

**BIOCHEMISTRY 300B**  
**General Biochemistry II**  
**Course Outline: Spring 2023**

**Place:** Fraser Building Room 159  
**Time:** Tuesday, Wednesday, Friday: 12:30 - 1:20 pm  
**Textbook:** Biochemistry by Berg, Tymoczko, and Stryer, **9<sup>th</sup> edition**  
**Web site:** UVic BrightSpace

**Instructors:**

**Dr. Alisdair “Al” Boraston (Jan 10 – Feb 17)**

**Course coordinator**

Office hours: Wednesdays 1:30 to 2:20 pm. Mode of delivery TBD or by Zoom via appointment.

email: [boraston@uvic.ca](mailto:boraston@uvic.ca)

**Dr. C Helbing (Feb 28 – Apr 5)**

Office hours: Tuesdays 1:30 to 2:20 pm. Mode of delivery TBD or by Zoom via appointment.

email: [chelbing@uvic.ca](mailto:chelbing@uvic.ca)

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*We acknowledge and respect the ləkʷəŋən peoples on whose traditional territory the university stands and the Songhees, Esquimalt and WSÁNEĆ peoples whose historical relationships with the land continue to this day.*

The BIOC 300B classroom and online environments are ones where everyone will be treated with respect, and we welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, ability-and other visible and nonvisible differences. All members of this class are expected to contribute to a respectful, welcoming, and inclusive environment for every other member of the class.

BIOC 300B in conjunction with BIOC300A provides detailed coverage of foundation topics for students majoring in Biochemistry or Microbiology. In this course, the structures and functions of DNA, RNA and genes are discussed along with the regulation of gene expression in prokaryotes and eukaryotes. Also discussed are metabolic processes and their control. Students need to have a good understanding of the principles of cell biology and organic chemistry before taking this course.

*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 <https://www.uvic.ca/services/cal/> in order to assess your specific needs.*

**Biochemistry 300B 2023. Lecture Schedule and Topics**

Lecture #	Date	Topic	Text Reference
<b>Dr. Boraston's Material</b>			
1	Jan 10	Metabolism preamble	Ch. 15
2	11	Bioenergetics (continued)	
3	13	Bioenergetics (continued)	
4	17	Intermediary Metabolism: Glycolysis	Ch. 16: pp. 491-516
5	18	Intermediary Metabolism: Glycolysis (continued)	
6	20	Gluconeogenesis	Ch. 16: pp. 519-531
7	24	Citric Acid Cycle	Ch. 17 (omit 17.5)
8	25	Citric Acid Cycle (continued)	
9	27	Citric Acid Cycle (continued)	
<b>10</b>	<b>31</b>	<b>Take-home midterm-style assignment 1 on lectures 1-9 (25%)</b>	
11	Feb 1	Chemiosmosis and ATP synthesis	Ch. 18
12	3	Chemiosmosis and ATP synthesis (continued)	
13	7	Glycogen metabolism	Ch. 21: pp 679-686
14	8	Fatty acid degradation and synthesis	Ch. 12: pp 373-378
15	10	Fatty acid degradation and synthesis (continued)	Ch. 22: pp 709-735
16	14	Protein and Amino Acid Catabolism	Ch. 23: pp. 751-769
17	15	Protein and Amino Acid Catabolism (continued)	
<b>18</b>	<b>17</b>	<b>Take-home midterm-style assignment 2 on lectures 11-17 (25%)</b>	
	<b>20-24</b>	<b>Reading Break</b>	
Lecture #	Date	Topic	Text Reference
<b>Dr. Helbing's Material</b>			
19	Feb 28	Nucleic acid and DNA structure	Ch. 4: 113-127
20	Mar 1	Flow of genetic information	Ch. 4: 127-137
21	3	DNA replication I	Ch. 29: 949-961
22	7	DNA replication II	Ch. 29: 961-968
23	8	DNA repair and recombination	Ch. 29: 968-978
24	10	Transcription in prokaryotes	Ch. 30: 983-995
25	14	Transcription in eukaryotes	Ch. 30: 996-1002
26	15	Post-transcriptional modifications I	Ch. 30: 1002-1016
27	17	Post-transcriptional modifications II	
<b>28</b>	<b>21</b>	<b>Take-home midterm-style assignment 3 on lectures 19-27 (25%)</b>	
29	22	Protein synthesis I	Ch. 31: 1021-1030
30	24	Protein synthesis II	Ch. 31: 1031-1045
31	28	Regulation of gene expression in prokaryotes I	Ch. 32: 1057-1070
32	29	Regulation of gene expression in prokaryotes II	
33	31	Regulation of gene expression in eukaryotes I	Ch. 33: 1075-1093
34	Apr 4	Regulation of gene expression in eukaryotes II	
<b>35</b>	<b>5</b>	<b>Take-home midterm-style assignment 4 on lectures 29-34 (25%)</b>	

**Lecture Content:** Each lecture will conform approximately to the organization used in the text. Additional material and examples may be added by the lecturer and will be posted on Brightspace. Readings from the text for each lecture have been assigned and should be read *prior to* the lecture. Information designed to guide students with the readings is available on Brightspace. **There is no final exam in this course.**

**Evaluations:**

<b>Date</b>	<b>Evaluation type</b>	<b>Percentage final mark</b>
Jan 31	1 <sup>st</sup> take-home midterm-style assignment <ul style="list-style-type: none"> <li>• This will be written through Brightspace.</li> <li>• Students may use the textbook and notes.</li> <li>• The evaluation will be open for 24 hours and students will have the entire time to complete the evaluation.</li> </ul>	25%
Feb 17	2 <sup>nd</sup> take-home midterm-style assignment <ul style="list-style-type: none"> <li>• This will be written through Brightspace.</li> <li>• Students may use the textbook and notes.</li> <li>• The evaluation will be open for 3 days and students will have the entire time to complete the evaluation.</li> </ul>	25%
Mar 21	3 <sup>rd</sup> take-home midterm-style assignment <ul style="list-style-type: none"> <li>• This will be written through Brightspace.</li> <li>• Students may use the textbook and notes.</li> <li>• The evaluation will be open for 24 hours and students will have the entire time to complete the evaluation.</li> </ul>	25%
Apr 5	4 <sup>th</sup> take-home midterm-style assignment <ul style="list-style-type: none"> <li>• This will be written through Brightspace.</li> <li>• Students may use the textbook and notes.</li> <li>• The evaluation will be open until April 13 and students will have the entire time to complete the evaluation.</li> </ul>	25%

Instead of in-class midterms, “midterm-style” assignments are given via Brightspace to promote student learning and success. Generous amounts of time and an open book format are given to complete these midterm-style assignments. The date and time assigned for completion of these assignments is a hard deadline and all assignments will be manually submitted by the instructor at this time whether complete or not. What has been completed at the time of submission is what will be graded.

If due to illness or family emergency a student is unable complete a midterm-style assignment, they must immediately contact the instructor **no later than 48 hours after the assignment due date**. Provisions will be made to ensure the student can complete the affected assignment, with the **expectation that its completion will occur within a week after the original assigned due date and time**. Please see below regarding incomplete (N) grades.

## UVic Grading Scheme

<b>A<sup>+</sup></b>	90 -100	<b>B<sup>+</sup></b>	77 - 79	<b>C<sup>+</sup></b>	65 - 69	<b>F</b>	< 50
<b>A</b>	85 - 89	<b>B</b>	73 - 76	<b>C</b>	60 - 64	<b>N **</b>	< 50
<b>A<sup>-</sup></b>	80 - 84	<b>B<sup>-</sup></b>	70 - 72	<b>D</b>	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:

#### **All assignments**

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.

### **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. However, many 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. Attendance and engagement in the classroom are integral parts of the learning process and cannot be substituted with recordings. It is at the instructor’s sole discretion whether they provide a recording or give permission to students to record a lecture. There is no obligation to do so nor is there any expectations about the quality of the recordings. Nor should students assume a lecture will be recorded as instructors may withdraw access to recordings or permission to record. It is the responsibility of students who miss lectures to catch up on the material through extra readings, and obtaining notes from fellow students. Students who miss several lectures due to illness should contact their instructors to discuss options.
4. Students and instructors are expected to assess their health daily and avoid campus if they are ill.
5. 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.
6. 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](mailto: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.
7. 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.

8. **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.
9. Requests for review/remark of a midterm exam must be made within one week of the exam being returned.
10. The instructor reserves the right to use plagiarism detection software or other platforms to assess the integrity of student work.
11. Supplemental exams or assignments will not be offered to students wishing to upgrade their final mark.
12. 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. Please reach out to Counselling Services, the Centre for Academic Communication, or Learning Assistance Program for assistance.

#### **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 activity.