

BIOCHEMISTRY 401 (Gene Expression in Eukaryotes)

Spring 2023/CRN 20306

This course is delivered in a face-to-face format only and attendance in class is required.

Location: CLE C112

Time: MR 10:00-11:20 am

INSTRUCTORS

Jan 9-Feb 16

Dr. Chris Nelson

Office: Petch 192

Office hours: Wednesdays 1-3pm

Email: cjn@uvic.ca

Feb 27 – April 6

Dr. Perry Howard

Office: Petch 186

Office hours: MR 3:00 -4:00 pm

email: phoward@uvic.ca

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

This classroom is one where everyone will be treated with respect, and we welcome individuals for 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.

Universal Washroom locations: Cle C045, C047, D119

TOPICS

Biochemistry 401 is an advanced study of gene expression in eukaryotes. Topics include gene structure, transcriptional regulation and post-transcriptional processing with special emphasis on transcription factors and RNA dynamics. There is an emphasis on active discussions of the current literature highlighting the role of gene expression in disease and development. The course is delivered in two parts which will conform approximately to the attached course outline, however some changes are possible.

PART 1: Dr. Nelson January 9 – Feb 16

The RNA polymerase machinery and the regulation of gene activation including transcriptional initiation, elongation and termination. Spatial aspects of transcription, and the importance of gene regulatory mechanisms in disease and development are also discussed.

Date	Topic	Assessment	% of total mark
Jan 9	Introduction, polymerases and perspectives		
12	The DNA template and transcription factors	Reading Quiz (In class)	3

16	Principles of Regulation		
19	Principles of Regulation	Group assignment 1	5
23	Transcriptional Initiation		
26	Polymerase Elongation	Group assignment 2	5
30		Quiz 1 (On line)	15
Feb 2	Elongation + the CTD (Dr. Lori Passmore public lecture)***		
6	Transcription factories		
9	Termination		
13	Unusual transcription events	Group Assignment 3	2
16		Quiz 2 (On line)	20
20	Reading break February 20 th -26 th		

PART 2: Dr. Howard, March 9- April 2

Splicing, alternative splicing, RNAi, nonsense mediated decay, translation (time permitting)

Grading:

Date	topic	assessment	% total mark
February 27	Coordinating transcription and RNA processing		
March 2	Pre-mRNA splicing		
6	Alternative splicing		
9	Alternative splicing and disease		
13	In-class group work	Group assignment 4	5%
16		Quiz 3 (online)	15%
20	RNAPII ins and outs of sorting and processing		
23	RNAPII ins and outs of sorting and processing- export	Take-home individual assignment (Due March 30)	20%
27	RNAi		
30	RNAi		
April 3	nonsense mediated decay		
6		Quiz 4 (online)	10%

*** Dr. Passmore's lecture will be in the evening of February 2nd and is considered part of the course. Students are expected to attend the lecture. The lecture will be recorded for those students who have a conflict.

Quizzes

Quizzes 1-4 will be on line and asynchronous. Students will have the lecture time free to write the quiz. Students must work alone, and may not discuss any of the questions on the exam with other students until 24 hours after the quiz closes.

Quizzes 1 and 2 will be open for 24 hours, and students will have 60 minutes to complete them once they begin.

For quizzes 3 and 4 students will have the full 24 hours to complete, though the quiz will easily be completed within 60 minutes.

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:

- *Four of five Group or Individual Assignments*
- *Three of four Quizzes (not including the first reading quiz on Jan12)*

Failure to complete 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.

Deferral Policy for Biochemistry 401

Please note that this course will have **NO deferred quizzes**. Students who fail to write a quiz/test will have their grade averaged over the remaining three quizzes. Once a student has started a quiz, they will be deemed to have completed the quiz regardless of how many questions they answered on the quiz/test.

Students who fail to complete more than one quiz will be assigned 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 who fail to participate in a group assignment or fail to submit the individual assignment due to illness, accident, or family affliction must notify the Instructor within 24hrs. They will have 72 hours to complete the assignment on their own and submit it for marking.

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) 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.
13. The Faculty of Science has developed the attached code of conduct (<https://www.uvic.ca/services/advising/advice-support/academic-units/student-code-of-conduct/index.php>) which outlines behavioural expectations for all courses.

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.

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 activity.