Expected Learning Outcomes

In BCMB 301B, you will have the opportunity to employ fundamental biochemical, microbiological and molecular biological laboratory techniques to investigate experimental problems. Using data generated in a range of experiments, you will learn to apply relevant theoretical concepts to analyse the data and evaluate experimental outcomes. In addition to developing analytical and practical laboratory skills, you will develop problem solving and critical thinking skills by relating acquired knowledge to new problems or trouble-shooting questions. Time management skills will be developed through efficient organization of experimental components.

Upon successful completion of BCMB301B you will have an understanding of the principles studied, and be able to apply that understanding to new problems. You will be able to communicate scientific principles effectively, and keep accurate records of your experimental work. You will have demonstrated a proficiency in the laboratory techniques employed such as: setting up assays, molecular cloning techniques, aseptic technique, eukaryotic tissue culture in a biological safety cabinet, performing calculations for solution preparation, serial dilutions, classical microbiology techniques and data analysis.

What to Expect in BCMB 301B 2021

BCMB 301B labs will be held in Petch 145 (typically known as the Micro 200 lab). To accommodate the requirements for social distancing only 15 students per section (capped at 30 students) will be in the lab each week. The other half of the lab will complete online lab modules or attend discussion sessions via Zoom. Below are the lab schedules for Group A and Group B, which indicate when groups will be in the lab (grey shading) and when they will be working online.

In the lab, students will work independently, with the support of a lab instructor and a teaching assistant (TA), to complete the lab protocol. The in lab protocols will ensure students are acquiring the lab skills required to meet the learning outcomes of BCMB 301B. The online lab modules support the 301B learning outcomes by providing students the opportunity to focus on data analysis and expected experimental outcomes. Upon successful completion of this hybrid BCMB 301B course, students will be prepared for future lab courses and other experiential learning opportunities in the field of biochemistry and microbiology.

The reduced number of students in the lab each week will ensure social distancing measures can be maintained but it will also increase the level of assistance that you can receive from the lab instructor and TA. Independent work stations will minimize the need to move around the lab to access communal equipment. Additional safety

strategies that will be employed in lab include increased disinfection of work surfaces, communal equipment and high-touch surfaces, directional traffic flow in the lab and timed-entry. There will be a strict no illness policy for students and lab staff; alternatives will be available for students that fall ill during the semester.

Included in the lab schedule are the relevant due dates. All assignments and assessments will be submitted electronically through UVic's learning management system, Brightspace.

Lab instructors are dedicated to supporting the students and will continue to offer students support in and out of the lab. Office hours will be held over Zoom, and students will have the opportunity to book one-on-one sessions. Lab instructors will be also available to answer questions by email.

Evaluation

The final mark will be based on:

Prelab and Procedural Quizzes	8%
Discussion Quizzes	12%
Practical Assessment	15%
Lab Summaries	15%
Exam #1 (Labs 1 & 2)	15%
Exam #2 (Labs 3 & 4)	35%

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 that have written the examinations and completed the in-class laboratories will be assigned a final grade. Failure to complete these elements may result in a grade of "N" regardless of the cumulative percentage on other elements of the course. 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.

Attendance

This is a practical course that progressively builds your expertise in lab techniques; your attendance and punctuality for each lab (including Zoom sessions) is important. Please contact the senior lab instructor if you are not able to attend your regularly scheduled lab session.

Due to the pandemic and the potential for travel restrictions, students are strongly advised to live within the Greater Victoria area while taking BCMB 301B. Students unable to attend labs due to travel restrictions may be unable to complete the course requirements which may result in the assigning of an N grade (see requirements for course completion).

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 activity.

BCMB 301B Laboratory Schedule Spring 2021 Group A

Week	Date	Day 1	Day 2	Due Dates
1	Jan 11 - 15	Lab 2, Part A-D: Invasion Assay & Trypsinization	Lab 2, Part E: Count Plates Lab 3, Part A: Colony PCR	Day 1: Introductory Quiz (complete on Brightspace) Day 2: Lab 2 Journal
2	Jan 18 - 22	Lab 1: LPS lab (online) Lab 3: Pre-Lab Tutorial & Assignment (online)	Lab 2 Discussion (Zoom)	Lab 3 Pre-Lab Assignment: B01 & B02 due Jan. 22 by 11:59pm Day 2: Lab 2 Summary
3	Jan 25 - 29	Lab 3, Parts B-G: Analysis of PCR , Plasmid preps, Nanodrop, Digests, Prepare gel	Lab 3, Parts H-I: Agarose Gel Electrophoresis, Ligation	Lab 3 Pre-Lab Assignment: B03 & B04 due Jan. 25 by 11:59pm
4	Feb 1 - 5		Lab 1 Discussion (Zoom)	Day 2: Lab 1 Summary
5	Feb 8 - 12	**Attend last 2 hours of lab** Lab 3, Parts J-K: Comp Cell Prep & Transformation (online) Lab 4, Part A: Phage Titring	**Attend last 50 minutes of lab** Lab 4, Part B: Analyze Phage Titre Plates	Day 2: Lab 4 Results, Table 1 & MOI calculation
6	Feb 15 - 19	Reading Break		
7	Feb 22 –26	No labs this week for Group A		
		Midterm Exam: Labs 1 & 2 Thursday, Feb. 25 at 7pm		
8	Mar 1 - 5	Lab 4, Parts C-D: Transposition Mutagenesis Lab 3, Parts L-M: Examine Transformation Plates & Controls, Colony PCR	Lab 4, Parts E-F: Analysis of Transposition plates & Controls	Day 2: Lab 4 Results, Table 2, Diln Calc, Serial Diln, Transp. Frq. Calc, Table 3
9	Mar 8 - 12	**Attend last 2 hours of lab** Lab 3, Parts N-O: PCR Analysis by Agarose Gel Lab 4, Part G:Replica Plating		Day 2: Lab 3 Journal
10	Mar 15 - 19	**Attend last 2 hours of lab** Lab 4, Parts H-I: Isolate Lac^- Mutants & Presumptive Auxos.	Lab 4, Parts J-K: AA Pool Plates, Lac^- Mutants onto Differential Media	Day 1: Lab 4 Results; Table 4, Table 5 (column 1 only)
11	Mar 22- 26	**Attend last 2 hours of lab** Lab 4, Parts L-M: Lac- Genotype & Auxo. Phenotype	Labs 3 Discussion (Zoom)	Day 1: Lab 4 Results; Table 5-7 Day 1: Lab 4 Journal Day 2: Lab 3 Summary
12	Mar 29 – Apr 2	Lab 4 Discussion (Zoom)		Day 1: Lab 4 Results; Table 8
Final Exam: Lab 3 & 4 scheduled during the exam period				

BCMB 301B Laboratory Schedule Spring 2021 Group B

Week	Date	Day 1	Day 2	Due Dates
1	Jan 11 - 15	Lab 3: Pre-Lab Tutorial & Assignment (Online) Lab 1: LPS lab (Online)		Day 1: Introductory Quiz (complete on Brightspace)
2	Jan 18 - 22	Lab 2, Part A-D: Invasion Assay & Trypsinization	Lab 2, Part E: Count Plates Lab 3, Part A: Colony PCR	Lab 3 Pre-Lab Assignment: B01-B04 due Jan. 22 by 11:59pm Day 2: Lab 2 Journal
3	Jan 25 - 29	Lab 1 Discussion (Zoom)	Lab 2 Discussion (Zoom)	Day 1: Lab 1 Summary Day 2: Lab 2 Summary
4	Feb 1 - 5	Lab 3, Parts B-G: Analysis of PCR , Plasmid preps, Nanodrop, Digests, Prep gel	Lab 3, Parts H-I: Agarose Gel Electrophoresis, Ligation	
5	Feb 8 - 12	**Attend first 2 hours of lab** Lab 3, Parts J-K: Comp Cell Prep & Transformation (online) Lab 4, Part A: Phage Titring	**Attend first hour of lab** Lab 4, Part B: Analyze Phage Titre Plates	Day 2: Lab 4 Results; Table 1 & MOI calculation
6	Feb 15 - 19	Reading Break		
7	Feb 22 –26	Lab 4, Parts C-D: Transposition Mutagenesis Lab 3, Parts L-M: Examine Transformation Plates & Controls, Colony PCR	Lab 4, Parts E-F: Analysis of Transposition plates & Controls	Day 2: Lab 4 Results; Table 2, Diln Calc, Serial Diln, Transp. Frq. Calc, Table 3.
		Midterm Exam: Labs 1 & 2 Thursday, Feb. 25 at 7pm		
8	Mar 1-5	No labs this week for Group B		
9	Mar 8 - 12	**Attend first 2 hours of lab** Lab 3, Parts N-O: PCR Analysis by Agarose Gel Lab 4, Part G: Replica Plating	Lab 4, Parts H-I: Isolate Lac$^-$ Mutants & Presumptive Auxotrophs	Day 2: Lab 3 Journal Day 2: Lab 4 Results; Table 4, Table 5 (column 1 only)
10	Mar 15 - 19	**Attend first 2 hours of lab** Lab 4 Parts J-K: Amino Acid Pool Plates, Lac$^-$ Mutants onto Differential Media		
11	Mar 22- 26	**Attend first 2 hours of lab** Lab 4, Parts L-M: Lac- Genotype & Auxo. Phenotype	Labs 3 Discussion (Zoom)	Day 1: Lab 4 Results; Table 5-7 Day 1: Lab 4 Journal Day 2: Lab 3 Summary
12	Mar 29 – Apr 2	Lab 4 Discussion (Zoom)		Day 1: Lab 4 Results; Table 8
Final Exam: Lab 3 & 4 scheduled during the exam period				