BCMB 301A Expected Learning Outcomes

In BCMB 301A, 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 BCMB301 you will have an understanding of 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 also demonstrated a proficiency in the following laboratory techniques: setting up assays; pouring and running gels; protein purification; sterile technique in tissue culture experiments; and be able to perform calculations for solution preparation.

What to Expect in BCMB 301A Fall 2020

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 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, 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 301A. The online lab modules support the 301A learning outcomes by providing students the opportunity to focus on data analysis and expected experimental outcomes. Upon successful completion of this hybrid BCMB 301A 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.

Course Evaluation

The final mark will be based on:

Prelab and Procedural Quizzes	8%
Discussion Quizzes	12%
Practical Assessments	15%
Lab Summaries	15%
Exam #1 (Labs 1-3)	20%
Exam #2 (Labs 4-7)	30%

BCMB 301A Laboratory Schedule Fall 2020 Group A

Week	Date	Day 1	Day 2	Due Dates
1	Sept. 14 – 18	Introduction & Safety – in lab (first 2 hrs. of lab) Lab 1: Introduction to Bioinformatics; online lab	Literature Exercise (Zoom)	Day 2: Lab 2 Calculations Sept 20: Introductory 301A Quiz
2	Sept. 21 – 25	Lab 2: pH & Properties of Buffers; in lab	Lab 1 Discussion (Zoom)	Day 1: Literature Exercise Day 2: Lab 1 Summary Day 2: Lab 2 Journal Sept. 27: Calculation Exercise
3	Sept. 28 – Oct. 2	Lab 3: Determination of Protein Concentration; online lab	Lab 2 Discussion (Zoom)	Day 2: Lab 2 Summary
4	Oct. 5 – 9	Lab 4: AS precip, SEC, IEC; in lab	Lab 3 Discussion (Zoom)	Day 2: Lab 3 Summary
5	Oct. 12 – 16	Oct. 12 –Thanksgiving	Lab 5: Subculture hybridomas; in lab Lab 5: ELISA; online lab	**Midterm Exam: Labs 1, 2 & 3** **Thurs, Oct 15, 7:00-9:00 pm (online)**
6	Oct. 19 – 23	Lab 4: Prepare & Run SDS-PAGE & ß-gal assay; in lab	Lab 4: Image gel, Bradford; in lab	Day 1: Antibody Titre Graph Day 2: Lab 4 Journal Day 2: Lab 4 Practical
7	Oct. 26 – 30	Lab 4 Discussion (Zoom)	Lab 6: Reversible Inhibition; online lab	Day 1: Lab 4 Summary
8	Nov. 2 – 6	Lab 5: SDS-PAGE & Transfer; in lab	Lab 5: Image gel & Develop blot; in lab	Day 2: Lab 5 Journal
9	Nov. 9 - 13	Reading Break: November 9-11		
10	Nov. 16 – 20		Lab 6: Discussion (Zoom)	Day 2: Lab 6 Summary
11	Nov. 23 – 27	Lab 5 Discussion (Zoom)	Lab 7: Irreversible Inhibition; online lab	Day 1: Lab 5 Summary
12	Nov. 30 Dec. 4	Lab 7 Discussion (Zoom)		Day 1: Lab 7 Summary
Final Exam: Labs 4, 5, 6 & 7 scheduled during the exam period				

BCMB 301A Laboratory Schedule Fall 2020 Group B

Week	Date	Day 1	Day 2	Due Dates
1	Sept. 14 – 18	Introduction & Safety – in lab (last 2 h. of lab) Lab 1: Introduction to Bioinformatics; online lab	Literature Exercise (Zoom)	Day 2: Lab 2 Calculations Sept 20: Introductory 301A Quiz
2	Sept. 21 – 25	Lab 3: Determination of Protein Concentration; online lab	Lab 1 Discussion (Zoom)	Day 1: Literature Exercise Day 2: Lab 1 Summary Sept. 27: Calculation Exercise
3	Sept. 28 Oct. 2	Lab 2: pH & Properties of Buffers; in lab	Lab 3 Discussion (Zoom)	Day 2: Lab 3 Summary Day 2: Lab 2 Journal
4	Oct. 5 – 9	Lab 2 Discussion (Zoom)	Lab 5: Subculture hybridomas; in lab Lab 5: ELISA; online lab	Day 1: Lab 2 Summary
5	Oct. 12 – 16	Oct. 12 –Thanksgiving	Lab 6: Reversible Inhibition; online lab	**Midterm Exam: Labs 1, 2 & 3** **Thurs, Oct 15, 7:00-9:00 pm (online)**
6	Oct. 19 – 23	Lab 6: Discussion (Zoom)		Day 1: Lab 6 Summary Day 2: Antibody Titre Graph
7	Oct. 26 – 30	Lab 5: SDS-PAGE & Transfer; in lab	Lab 5: Image gel & Develop blot; in lab	Day 2: Lab 5 Journal
8	Nov. 2 – 6	Lab 7: Irreversible Inhibition; online lab	Lab 5: Discussion (Zoom)	Day 2: Lab 5 Summary
9	Nov. 9 – 13	Reading Break: November 9-11		
10	Nov. 16 – 20	Lab 4: AS precip, SEC, IEC; in lab	Lab 7 Discussion (Zoom)	Day 2: Lab 7 Summary
11	Nov. 23 – 27	Lab 4: SDS-PAGE & ß-gal assay; in lab	Lab 4: Image gel, Bradford; in lab	Day 2: Lab 4 Journal Day 2: Lab 4 Practical
12	Nov. 30 Dec. 4	Lab 4 Discussion (Zoom)		Day 1: Lab 4 Summary
Final Exam: Labs 4, 5, 6 & 7 scheduled during the exam period				