MICROBIOLOGY 405 Biotechnology and Synthetic Biology Course Outline: Fall 2020

Place: Online lectures

Time: Monday and Thursday (11:30 \pm 12:50)

Includes: formal group meetings, assessments and independent study

Monday and Thursday: office hours 1:00 ±2:00 pm

This course will be offered completely online, using a flipped classroom scenario and a group project, and including synchronous and asynchronous lectures. Greater detail into how this will work is provided below.

Textbook: There is no text book for this course

Course Coordinator / Instructor : Dr. Vanessa C. Thompson

Office hours: M, Th 1:00 ±2:00 pm (or by appointment)

email: vanessathompson@uvic.ca

Prerequisites: Complete all of:

MICR200A, MICR200B, BIOC300A, BIOC300B

Software and communication platforms:

The primary website for the course will be on Brightspace.

Lectures and group projects will utilize Zoom and (possibly) Microsoft Teams, with details to accessing these platforms to be available within the Brightspace site. Additional notifications will be made through Brightspace as necessary.

First Scheduled Lecture of course:

This will be on Zoom, and at that time we will discuss the structure of the class. The link to this meeting will be posted on the Brightspace site.

Course Organization and Marking:

7KH FRXUVH LV QRW SUHVHQWHG DQG RUJDQL]HG pped WKH WU FODVVURRP '7KLV IRUPDW KDV VWXGHQWV OHDUQ EDVLF PD' time for projects.

Your group will attend meetings in a breakout room of Zoom, and perhaps Microsoft Teams.

This breakout room will be accessible through the main room of the conferencing platform during scheduled class time.

It is entirely likely (and encouraged) that your group meets outside of these times, as possible for your collective schedules. You may set up your own conferencing platforms or sessions for these meetings, or you can arrange to have me set up individual conference sessions if you prefer.

6HH FRXUVH FDOHQGDU IRU \RXU JURXS¶V IRUPDO PHHWLQJ (VWXGHQWV¶ DWWHQGDAQte-IndianDoeQisQmaShDhabub kWabn ElboShbDbWhtebsRoOyour group project mark.

1. All lectures are available both as PDFs and (almost all) as audio presentations of Power 3 R L Q W S U H V H Q W D W L R Q V 7 K H \ BiddlitspaleY DVLIONDHE O H D W W K H 0 You are expected to view either the PDFs or the audio lectures (or both) on your own. The lectures are divided into groups to help you know what material will be covered on which exam.

7 K H S U R M H F W V D U H P H D Q W W R E H D Q ³ L Q W H O O H F W X D O O D described in the course in a creative way to solve real world problems. This year, you will be highly encouraged to come up with ideas that contribute to SARS-CoV-2 detection or treatment, or climate change mitigation. A reasonable effort on the project should result in a good grade that will help buffer a poor exam grade.

3. Classroom time will be devoted primarily to smaller group meetings of a subset of the class. See the class calendar (in Brightspace) to determine which days you are expected to attend with your group.

The final grades will be determined as follows:

(26%) Group project.

(54%) Quizzes (6 quizzes in total, equally weighted).

(20%) Final Exam

See the document "Grading and Exams" to understand what will be on the quizzes and exams.

Completion of all components (6 quizzes, group project, and final exam) are required to complete the course and receive a passing grade.

Lecture topics

Section 1. Cloning, PCR & Sequencing.

Introduction.

Enzymes used in biotechnology

PCR basics

Plasmid cloning.

Making a plasmid clone bank

Specialized plasmid cloning vectors and systems.

Section 2. DNA sequencing and other technologies.

Generation of cDNA.

Fosmids, BACs and YACs.

Sanger DNA sequencing.

Sequencing strategies

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DNA amplification and genome walking.

Section 3. DNA and Genomic Assembly

Exams, quizzes and presentations:

Quiz 1	Monday, September 21, 2020		
Quiz 2	Monday, October 5, 2020		
Quiz 3	Monday, October 19, 2020		
Quiz 4	Monday, November 2, 2020		
Quiz 5	Monday, November 16, 2020		
Quiz 6	Monday, November 23, 2020		
Group Presentations	Monday, November 30 and Thursday, December 3, 2020		
Final Exam	To be determined		

Failure to complete one or more of the course components, including all six Quizzes, the Group Presentation and the Final Exam ZLOO UHVXOW LQ D JUDGH RI 31 ´UHJDUGOI percentage on other elements of the course. An N is a failing grade, and it factors into a VWXGHQW¶V *3\$ DV 7KH PD[LPXP SHUFHQWDJH WKDW FDQ DF transcript is 49.

DEPARTMENT INFORMATION AND POLICIES

7 K H 'HSDUWPHQW RI % LRFKHPLVWU\ DQG 0 LFURELRORJ\ X Sckidenois V DQG 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.