

MICR303
Immunology
Summer 2021 (Virtual course)

INSTRUCTORS

July 5-26 2021

Dr. Catherine Bachewich (cbachewich@uvic.ca)

Sessional Lecturer, Department of Biochemistry and Microbiology, University of Victoria
Affiliate Associate Professor, Department of Biology, Concordia University, Montreal, QC

July 28-August 19 2021

Dr. Lisa Reynolds (lisareynolds@uvic.ca); course co-ordinator

Assistant Professor, Department of Biochemistry and Microbiology, University of Victoria

SCHEDULED COURSE TIMES

Monday, Wednesday, Thursday 10:30am-12:20pm. July 5th-Aug 19th 2021.

Note: this course is a blend of asynchronous and synchronous sessions. Students are not required to be present live for all times and dates listed above. Times and dates that students are required to be present for synchronous live virtual sessions are outlined below. However, we recommend students use the times slots above to dedicate to working through the provided asynchronous material.

COURSE OBJECTIVES

This course provides an overview of the mammalian immune system and its function during health and disease. Students will learn the key components of the immune system, how diverse pathogens or substances are recognised, how pathogen-specific effector responses are generated, how immunological memory is generated, how immune responses are kept in check, how inappropriate immune responses can lead to disease, and how the immune system can be harnessed therapeutically. Examples of experimental approaches used to probe the function of the immune system will be included throughout the course.

TEXTBOOK

Janeway's Immunobiology, 9th Edition. Textbook reading is recommended to reinforce information discussed in class, and to provide additional details for those that are interested. Students will not be examined on information in the textbook or on other source material that is not covered in class.

LECTURE FORMAT

Pre-recorded lectures for the upcoming week will be posted on Brightspace on or before the Monday of each week. Lectures will consist of a recorded Zoom session that includes Powerpoint presentations, videos, and verbal descriptions of material. Notes are arranged by topic, and a single topic may span multiple lectures. Not all material will be written down in the notes; some

points will be highlighted in a verbal manner. Students are responsible for synthesizing all materials covered in the course presentations.

Synchronous class discussions for review, problem exercises, and questions will take on Thursdays of each week from 10:30am-11:30am via Zoom (Zoom link to be posted on Brightspace). Students are expected to review the posted lecture material prior to these sessions. Synchronous class participation is strongly recommended. The sessions will be recorded and posted on Brightspace. The live sessions will include an overview of concepts presented in pre-recorded lectures, and questions/exercises. There will be an additional synchronous session on Monday July 5, 10:30am-11:20am.

Students will sign into the Zoom link via their UVIC ID. Student video and audio can be turned off during the recorded live sessions for anonymity, but names will appear. Questions can be asked via the Chat function for anonymity, or by turning on the audio/video.

Dates and times of live synchronous sessions:

Monday July 5th 2021 10:30am-11:20am
Thursday July 8th 2021 10:30am-11:30am
Thursday July 15th 2021 10:30am-11:30am
Thursday July 22nd 2021 10:30am-11:30am
Thursday July 29th 2021 10:30am-11:30am
Thursday August 5th 2021 10:30am-11:30am
Thursday August 12th 2021 10:30am-11:30am

OFFICE HOURS

Office hours will be virtual, via Zoom (Zoom link to be posted on Brightspace), on the Thursday of each week from 11:30am-12:30pm, via an appointment at a different time, or via email.

Dates and times of office hours:

Thursday July 8th 2021 11:30am-12:30pm
Thursday July 15th 2021 11:30am-12:30pm
Thursday July 22nd 2021 11:30am-12:30pm
Thursday July 29th 2021 11:30am-12:30pm
Thursday August 5th 2021 11:30am-12:30pm
Thursday August 12th 2021 11:30am-12:30pm

COURSE CONTENT

**A single topic may span multiple lectures.*

Topic*	Description	Instructor
1. Introduction	Principles of innate and adaptive immunity (Ch. 1)	CB

2. Innate immunity	Anatomical barriers, antimicrobial peptides, complement, innate cell types and effector mechanisms, pattern recognition (Ch. 2,3)	CB
3. Adaptive immunity	Antigens and antigen presentation, generation of lymphocyte antigen receptors, T cell activation, T cell subsets and effector mechanisms, antibodies and antibody production (Elements of Ch. 4,5,6,7,9,10)	CB
4. Immunological memory	Memory B and T cells (Ch. 11)	CB
5. Vaccination	Example composition, methods (Ch. 16)	LR
6. Generation of tolerance and regulatory mechanisms	B, T cell development, central and peripheral tolerance and mechanisms preventing auto-reactivity (Ch. 8)	LR
7. Tumor immunology	Tumor immune environment, immunotherapy.	LR/JW
8. Autoimmunity	Disorders associated with the immune system attacking self, underlying factors including defects in tolerance (Ch. 15)	LR
9. Immunity at mucosal surfaces	Mucosal immunology, host-microbiota interactions (Ch. 12)	LR
10. Hypersensitivity and allergy	Allergy and allergic diseases, relationship with the microbiota (Ch. 14)	LR
11. Immunity to infectious pathogens and pathogen evasion strategies	Immunity to select bacterial, parasitic and viral pathogens, mechanisms by which pathogens evade the immune system (Ch. 13).	LR

ASSESSMENT OF STUDENT PERFORMANCE

(1) Techniques to be used:

- Grading of multiple choice, matching, short answer and longer answer questions on exams and quizzes, and assignment of a numerical mark to each question.

- Exams are based on material covered in lectures and synchronous sessions (pre-recorded lecture material, discussions). Lectures are based on information from the text and other sources. Textbook reading is recommended to reinforce information discussed in class, and to provide additional details for those that are interested. Students will not be examined on information in the textbook or on other source material that is not covered in class.
- Quizzes will be completed online via Brightspace. Quizzes will be timed; once the exercise is initiated on Brightspace, it will have to be completed within a designated period of time (60 minutes). However, a 24 hr window will be provided to allow flexibility for initiation of the quizzes.
- Exams will be given a set 24 hr open time block for completion.
- Quizzes and Exams are “open-book”, but students are expected to study as if they were writing in class in order to complete the exams within the designated time frame and not spend the majority of time searching for answers. Students are obligated to write exams and quizzes on their own, without the assistance of others.

(2) Evaluation and weighting:

Component	Date	Contribution to final grade
CB exam (open 24hrs)	9:00 am July 26th 2021 to 9:00 am July 27th 2021	35%
LR exam (open 24hrs)	9:00 am August 19th 2021 to 9:00 am August 20th 2021	35%
Quizzes (open for 24 hrs. Timed- once started you have a 60 minute time limit)	Quiz 1 (CB): available from 9am July 12th 2021 Quiz 2 (CB): available from 9am July 19th 2021 Quiz 3 (LR): available from 9am August 9th 2021 Quiz 4 (LR): available from 9am August 16th 2021	7.5% each quiz (30% total)

(3) 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:

2 exams and at least 2 quizzes

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.

Students are responsible for ensuring that they are properly registered in the course, and are expected to have met all pre/co-requisites for the course.

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>