

**MICR303
Immunology
Summer 2022**

INSTRUCTORS

July 4 2022- Aug 3 2022

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

Aug 4 2022-Aug 18 2022

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

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

PRE- OR CO-REQUISITES

Complete all of MICR200A and MICR200B.

Complete or concurrently enrolled in 1 of BIOC299/BIOC300A.

INCLUSIVITY

We consider our virtual classroom and office hours to be a place where you will be treated with respect, and we welcome individuals for all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expression, 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. We will gladly honor your request to address you by an alternate name or gender pronoun. Please advise us of this desire early in the semester so that we may make appropriate changes to my records.

TERRITORY ACKNOWLEDGEMENT

We acknowledge and respect the lək̓ʷəŋən 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.

SCHEDULED COURSE TIMES AND COURSE FORMAT

Monday, Wednesday, Thursday 10:30am-12:20pm. July 4-Aug 18 2022.

There will be no class on Aug 1 2022 (BC Day).

MacLaurin Building, Room D116

This course will be delivered in person, and students are expected to be present in person for class unless you are required to avoid campus due to illness.

Lecture slides will be posted on the course Brightspace page before each class.

Instructors will endeavour to record live lectures and post recordings on the course Brightspace page after class.

IMPORTANT DATES

Last day for adding courses for this semester: July 11, 2022

Last day for dropping courses without penalty of failure: Aug 3, 2022

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.

By the end of this course, students should be able to:

- Describe key components of the immune system, and how they work together to mount an appropriate defence against particular pathogens
- Describe mechanisms which limit the opportunity for the generation of self-directed or inappropriate immune responses
- Describe how specific immune effector responses are initiated and controlled
- Generate hypotheses about the immune responses that infection with a particular pathogen will elicit
- Design and interpret experiments that explore immune system function

TEXTBOOK

Janeway's Immunobiology, 9th Edition. Copies have been placed on reserve at the library. Textbook reading will be suggested throughout the course, with the purpose of reinforcing information discussed in class, and providing 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 provided in the course material.

OFFICE HOURS

Office hours will be virtual, via Zoom. Regular office hours for each instructor will be announced in class and posted on the course Brightspace page. If regular office hour times do not work with your schedule, you can arrange a different time via emailing the instructor.

COURSE CONTENT

**A single topic may (and often will) span multiple lectures.*

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

2. Innate immunity	Anatomical barriers, antimicrobial peptides, complement, innate cell types and effector mechanisms, pattern recognition	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	CB
4. Generation of tolerance and regulatory mechanisms	B, T cell development, central and peripheral tolerance and mechanisms preventing auto-reactivity	CB
5. Immunological memory	Memory B and T cells	CB
6. Vaccination	Types of vaccine and implications for immunity generated, COVID-19 vaccinations	CB
7. Tumor immunology	Tumor immune environment, immunotherapy	CB
8. Immunity to infectious pathogens and pathogen evasion strategies	Immunity to select bacterial, parasitic and viral pathogens, mechanisms by which pathogens evade the immune system	LR
9. Immunity at mucosal surfaces	Mucosal immunology, host-microbiota interactions	LR
10. Autoimmunity	Disorders associated with the immune system attacking self, risk factors for autoimmunity	LR
11. Hypersensitivity and allergy	Allergy and allergic diseases, relationship with the microbiota	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.
- Quizzes and exams are based on material covered in lectures. 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 in person, during scheduled class hours.
- Exams will be conducted in person, during scheduled class hours.
- Quizzes and exams are “closed-book”; no notes or electronic devices will be permitted.

(2) Evaluation and weighting:

Component	Date	Contribution to final grade
Exam 1 (CB)	July 18; in class	25% [#]
Exam 2 (CB)	August 3, 2022; in class	30% [#]
Exam 3 (LR)	August 18, 2022; in class	30%
Quizzes	Quiz 1 (CB): July 11 in class Quiz 2 (CB): July 27; in class Quiz 3 (LR): August 11 2022; in class	5% each quiz (15% total)

[#] The highest grade out of Exam 1 and Exam 2 will contribute 30% to the final grade, while the lower grade out of Exam 1 and Exam 2 will contribute 25% to the final grade.

(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:

Exams 1, 2 and 3, and at least 2 of the 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. 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.
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.

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.