

MICR303 (12358) Fall 2022
Immunology

INSTRUCTORS

Sept 8 2022-Oct 31 2022 and Nov 21 2022-Dec 1 2022

Dr. Lisa Reynolds (she/her) (lisareynolds@uvic.ca); course co-ordinator and instructor
Assistant Professor, Department of Biochemistry and Microbiology, University of Victoria

Nov 3 2022-Nov 17 2022

Dr. Brad Nelson (bnelson@bccrc.ca); instructor
Distinguished Scientist and Director, Deeley Research Centre, BC Cancer, Victoria
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 lək'wəŋən 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

Mondays and Thursdays 11:30am-12:50pm. Sep 8-Dec 1 2022.

There will be no class on Oct 10 2022 (Thanksgiving).

There will be no class on Nov 10 2022 (Reading Break).

Human and Social Development (HSD) Building, A240.

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 audio from lectures and post the recordings on the course Brightspace page after class.

IMPORTANT DATES

Last day for 100% reduction of tuition fees for course drop: Sep 20, 2022

Last day for adding course: Sep 23, 2022

Last day for 50% reduction of tuition fees for course drop: Oct 11, 2022

Last day for withdrawing from course without penalty of failure: Oct 31, 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, 10th Edition. Copies have been placed on reserve at the library. Diagrams from this textbook will be included in Lecture Slides provided to the class. 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 by emailing the instructor.

COURSE CONTENT

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

Depending on questions that come up in class, the order of delivery of the topics may differ slightly to that presented below.

Topic*	Description	Instructor
1. Introduction	Principles of innate and adaptive immunity	LAR
2. Innate immunity	Anatomical barriers, antimicrobial peptides, complement, innate cell types and effector mechanisms, pattern recognition	LAR
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	LAR
4. Generation of tolerance and regulatory mechanisms	B, T cell development, central and peripheral tolerance and mechanisms preventing auto-reactivity	LAR
5. Immunological memory	Memory B and T cells	LAR
6. Vaccination	Types of vaccine and implications for immunity generated, COVID-19 vaccinations	LAR
7. Tumor immunology	Tumor immune environment, immunotherapy	BHN
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	LAR
9. Immunity at mucosal surfaces	Mucosal immunology, host-microbiota interactions	LAR
10. Autoimmunity	Disorders associated with the immune system attacking self, risk factors for autoimmunity	LAR
11. Allergy	Allergy and allergic diseases, relationship with the microbiota	LAR

ASSESSMENT OF STUDENT PERFORMANCE

(1) Techniques to be used:

- Grading of multiple choice, true or false, 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 online via Brightspace, during the time windows indicated below. These quizzes are 'open book' (consulting class material/textbook is permitted) but students are expected to study as if they were writing quizzes without access to this material, so that they can complete the quizzes within the designated time frame and not spend the majority of the time searching for answers. These quizzes must be written independently, without the assistance of others. Once the quizzes are initiated on Brightspace, they have to be completed within 2 hours. Each quiz is designed to be completed within 30 minutes, however extra time is provided in case technical difficulties are experienced. Each quiz will be available for 24 hours to allow for flexibility for initiation of the quiz, but all answers must be submitted by the indicated deadline.
- Exams will be conducted in person, during scheduled class hours. These exams are 'closed book' (no class notes, additional materials, or electronic devices will be permitted during the exams).

(2) Evaluation and weighting:

Component	Date	Contribution to final grade
Midterm exam 1	Oct 3, 2022 (in person, in class)	25%
Midterm exam 2	Oct 31, 2022 (in person, in class)	30%
Final exam	During final exam period; date to be announced (in person)	30%
Quizzes	<p>Quiz 1 (online): Available from 8am Sep 26-8am Sep 27, 2022. Once open you have 2 hours to complete [designed to take 30 mins].</p> <p>Quiz 2 (online): Available from 8am Oct 24-8am Oct 25, 2022. Once open</p>	5% each quiz (15% total)

	<p>you have 2 hours to complete [designed to take 30 mins].</p> <p>Quiz 3 (online): Available from 8am Nov 21-8am Nov 22, 2022. Once open you have 2 hours to complete [designed to take 30 mins].</p>	
--	--	--

(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:

Midterm exam 1, midterm exam 2 and the final exam.

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. Attendance and engagement in the classroom are integral parts of the learning process and cannot be substituted with recordings. It is at the instructor's sole discretion whether they provide a recording or give permission to students to record a lecture. There is no obligation to do so nor are there any expectations about the quality of the recordings. Nor should students assume a lecture will be recorded as instructors may withdraw access to recordings or permission to record. It is the responsibility of students who miss lectures to catch up in the material through extra readings, and obtaining notes from fellow students. Students who miss several lectures due to illness should contact their instructors to discuss options.

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 for 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.

Links:

Student code of conduct: <https://www.uvic.ca/services/advising/advice-support/academic-units/student-code-of-conduct/index.php>

BMSS blog: <https://onlineacademiccommunity.uvic.ca/bmss/>