

# Introductory Microbiology and Immunology,

## MICI 2100 Syllabus

### Department of Microbiology and Immunology

### MICI 2100 Fall 2024

*Dalhousie University acknowledges that we are in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq People and pays respect to the Indigenous knowledges held by the Mi'kmaq People, and to the wisdom of their Elders past and present. The Mi'kmaq People signed Peace and Friendship Treaties with the Crown, and section 35 of the Constitution Act, 1982 recognizes and affirms Aboriginal and Treaty rights. We are all Treaty people.*

*Dalhousie University also acknowledges the histories, contributions, and legacies of African Nova Scotians, who have been here for over 400 years.*

#### Course Instructor(s)

Name	Email	Office Hours
Dr Francesca Di Cara	dicara@dal.ca	Collaborate Ultra, time TBD
Dr Craig McCormick	craig.mccormick@dal.ca	Collaborate Ultra, time TBD
Dr John Rohde	John.Rohde@Dal.Ca	TBD

TAs: Jordan Lucaks, Brianna Kelly and Christian Rempe.

#### Course Description

This is an introductory course designed to teach basic concepts of microbiology and immunology. The course material encompasses bacteriology, virology, immunology, and parasitology. Students are introduced to the structure and function of microorganisms, basic concepts of genetics, cellular immunology, and host immunity. The course material is taught with an emphasis on significant human and animal pathogens, host immunity, and biotechnology.

The online in-class quizzes of the course are designed to record attendance at the lecture, as your presence in the classroom is very important to succeeding in this course. The in-class

questions are not representative of the exam questions, and the full participation mark will be granted based on the best 85% of the answers.

### *Course Prerequisites*

Grades of B- or better in BIOL1010 and 1011 (or distance education equivalents) and CHEM1011 and CHEM1012. For the Dalhousie Integrated Science Program, an above-median grade in the Biology and Chemistry components is required. Permission from a course coordinator may also be given.

## **Student Resources**

Student resources are listed on the pdf that can be found in the course content folder "Syllabus and student resource"s.

## **Course Structure**

### *Course Delivery*

The course is delivered in person.

### *Lectures*

14:35-15:55, Studley KILLAM LIBRARY MACME, Wednesday and Friday

### *Tutorials*

*Discussion board (chats) via Brightspace: scheduled as required for student engagement or office hours as determined by the individual instructors (see page 1).*

*You will have an assigned TA to contact to clarify course contents and midterm questions. After each midterm, the TAs will establish a time slot for students to enquire about midterm questions/answers and grades. If you are not available in the designed time slot, you must contact the instructor (Rhode for midterm 1 and McCormick for midterm 2) to clarify any doubt about your grade and or answers. If a grade change is required, the student needs the permission of the designed instructor for the topic. If a grade change is approved by the designed instructor, the instructor will contact the course coordinator, who will change the marks in the grade book.*

## **Course Materials**

Lecture slides are provided by the instructors. Electronic notes or recordings might be provided at the discretion of the individual instructor. A Brightspace page is available and will serve as a key resource for students in the course. The recommended textbooks (not required) for the course are Brock Biology of Microorganisms edition 16 or

15 (Pearson Benjamin Cummings) and Kuby Immunology 8th edition (Macmillan Learning). Both are available as electronic textbooks (e-text) via Dal bookstore purchases if students want to supplement their learning. Limited numbers of hard copies are on reserve at the Killam Library. Dal Brightspace will be an e-portal for course materials and for delivering in-class assignments. Midterms and other examinations will be administered in person or at the discretion of the specific instructor; midterms could be online via Brightspace. If public health restrictions exist, course assessments will be conducted online via Brightspace.

**A laptop, tablet, phone, or any electronic device is required in class during lecture time to access the Brightspace quizzes that will occur during lecture time.**

## Assessment

*Assignments (90% lecture material, 10% in-class quizzes-Access to Brightspace during class is needed to complete the in-class quizzes)*

Students will be evaluated during the term with two tests, each worth 20% of the final grade.

Key evaluation dates (weighted value towards the final grade are in brackets; total = 100%)

-midterm #1 (20%) September 27th 2024, 14:35-15:55, Studley KILLAM LIBRARY MACME

-midterm #2 (20%) October 25th 2024, 14:35-15:55, Studley KILLAM LIBRARY MACME

-Quizzes (10%): in class quizzes

-Final exam (50%, all lecture material) Exam period, date TBD, scheduled by

Registrar's office

Conversion of numerical grades to final letter grades follows the

Dalhousie Grade Scale			
A+ (90-100)	B+ (77-79)	C+ (65-69)	D (50-54)
A (85-89)	B (73-76)	C (60-64)	F (0-49)
A- (80-84)	B- (70-72)	C- (55-59)	

## Course Policies on Missed or Late Academic Requirements

MICI2100 will NOT be using Student Declaration of Absence (SDA) Forms. Students missing any

midterm exam will be allowed to shift the weight of the midterm to the final exam. Students are allowed to shift the weight of both midterms to the final if needed, but it is not recommended. If a student cannot attend the final exam, they will be given one opportunity to take an alternate final exam within 4-7 days and rigorously before the Christmas break. The alternate final will contain only short answer questions, or it could be an oral exam and will be held in the coordinator's office in the presence of the TAs. Students must communicate their inability to attend a midterm or the final to the coordinator (F. Di Cara) before the original exam or within 1 day of missing said exam.

## Course Policies related to Academic Integrity

Students may request accommodation as a result of barriers related to disability, religious obligation, or any characteristic under the Nova Scotia Human Rights Act. Students who require academic accommodation for either classroom participation or the writing of tests, quizzes and exams should make their request to the Advising and Access Services Center (AASC) prior to or at the outset of the regular academic year. Please visit [www.dal.ca/access](http://www.dal.ca/access) for more

information and to obtain the Request for Accommodation Form. All students should read and be familiar with the University's position and policies on Academic

Integrity: [https://www.dal.ca/dept/university\\_secretariat/academic-integrity.html](https://www.dal.ca/dept/university_secretariat/academic-integrity.html).

### Learning Objectives

At the end of this course, students will have knowledge of bacterial, viral, and parasite features at the molecular and cellular level. In addition, knowledge of innate and adaptive immunity will be gained. Students will learn basic concepts in genetics, microbial communities and microbiomes, infectious diseases, antibiotic/antiviral functions, biotechnology, and genomics.

### Course Content

Week	Date	Lesson Topic(s)	Lecturer
1	Sept 4	Introduction, Microbiology and Immunology	Di Cara/Rohde
1	Sept 6	Bacterial Growth and Physiology, germ theory and sanitation	Rohde
2	Sept 11	Focus on genetics	Rohde
2	Sept 13	How antibiotics work and antibiotic resistance	Rohde
3	Sept 18	Bacterial virulence factors (toxins, etc.)	Rohde
3	Sept 20	Bacterial pathogenesis -1	Rohde
4	Sept 25	Bacterial pathogenesis -2 / Biotechnology	Rohde
4	Sept 27	Midterm test #1	Rohde
5	Oct 2	Intro to Virology	McCormick
5	Oct 4	Virus structure	McCormick
6	Oct 9	Virus Entry	McCormick
6	Oct 11	Virus Genomes (part 1)	McCormick
7	Oct 16	Virus Genomes (part 2)	McCormick
7	Oct 18	Virus Assembly and Egress	McCormick

8	Oct 23	Virus Genetic and Evolution	McCormick
8	Oct 25	<b><i>Midterm test #2</i></b>	McCormick
9	Oct 30	Evolution of the immune system: Historical perspectives	Di Cara
9	Nov 1	Cells and organs of the immune system	Di Cara
10	Nov 6	Humoral immunity	Di Cara
10	Nov 8	Microbial recognition by the innate immune system	Di Cara
11	Nov 20	Immunity to Bacteria	Di Cara
11	Nov 22	Immunity to Viruses	Di Cara
12	Nov 27	Immunity to Parasites	Di Cara
12	Nov 29	Recap	Di Cara/Rohde/ McCormick

## University Policies and Statements

### Recognition of Mi'kmaq Territory

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel, and support. Visit or e-mail the Indigenous Student Centre at 1321 Edward St or [elders@dal.ca](mailto:elders@dal.ca). Additional information regarding the Indigenous Student Centre can be found at: [https://www.dal.ca/campus\\_life/communities/indigenous.html](https://www.dal.ca/campus_life/communities/indigenous.html)

### Internationalization

At Dalhousie, 'thinking and acting globally' enhances the quality and impact of education, supporting learning that is "interdisciplinary, cross-cultural, global in reach, and orientated toward solving problems that extend across national borders." Additional internationalization information can be found at: <https://www.dal.ca/about-dal/internationalization.html>

### Academic Integrity

At Dalhousie University, we are guided in all our work by the values of academic integrity: honesty, trust, fairness, responsibility, and respect. As a student, you are required to demonstrate these values in all the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity. Additional academic integrity information can be found at: [https://www.dal.ca/dept/university\\_secretariat/academic-integrity.html](https://www.dal.ca/dept/university_secretariat/academic-integrity.html)

### Accessibility

The Student Accessibility Centre is Dalhousie's centre of expertise for matters related to student accessibility and accommodation. If there are aspects of the design, instruction, and/or experiences within this course (online or in-person) that result in barriers to your inclusion, please contact the Student Accessibility Centre ([https://www.dal.ca/campus\\_life/academic-support/accessibility.html](https://www.dal.ca/campus_life/academic-support/accessibility.html)) for all courses offered by Dalhousie with the exception of Truro. For courses offered by the Faculty of Agriculture, please contact the Student Success Centre in Truro (<https://www.dal.ca/about-dal/agricultural-campus/student-success-centre.html>)

### Conduct in the Classroom – Culture of Respect

Substantial and constructive dialogue on challenging issues is an important part of academic inquiry and exchange. It requires willingness to listen and tolerance of opposing points of view. Consideration of individual differences and alternative viewpoints is required of all class

members, towards each other, towards instructors, and towards guest speakers. While expressions of differing perspectives are welcome and encouraged, the words and language used should remain within acceptable bounds of civility and respect.

### **Diversity and Inclusion – Culture of Respect**

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness (Strategic Priority 5.2). Additional diversity and inclusion information can be found at: <http://www.dal.ca/cultureofrespect.html>

### **Student Code of Conduct**

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner - perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution. The full Code of Student Conduct can be found at:

[https://www.dal.ca/dept/university\\_secretariat/policies/student-life/code-of-student-conduct.html](https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html)

### **Fair Dealing Policy**

The Dalhousie University Fair Dealing Policy provides guidance for the limited use of copyright protected material without the risk of infringement and without having to seek the permission of copyright owners. It is intended to provide a balance between the rights of creators and the rights of users at Dalhousie. Additional information regarding the Fair Dealing Policy can be found at: [https://www.dal.ca/dept/university\\_secretariat/policies/academic/fair-dealing-policy-.html](https://www.dal.ca/dept/university_secretariat/policies/academic/fair-dealing-policy-.html)

### **Originality Checking Software**

The course instructor may use Dalhousie's approved originality checking software and Google to check the originality of any work submitted for credit, in accordance with the Student Submission of Assignments and Use of Originality Checking Software Policy. Students are free, without penalty of grade, to choose an alternative method of attesting to the authenticity of their work and must inform the instructor no later than the last day to add/drop classes of their intent to choose an alternate method. Additional information regarding Originality Checking



Software can be found at: <https://www.dal.ca/about/leadership-governance/academic-integrity/faculty-resources/ouriginal-plagiarism-detection.html>

### **Student Use of Course Materials**

Course materials are designed for use as part of this course at Dalhousie University and are the property of the instructor unless otherwise stated. Third party copyrighted materials (such as books, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law. Copying this course material for distribution (e.g. uploading to a commercial third-party website) may lead to a violation of Copyright law.