Health Science Microbiology Syllabus

Department of Microbiology & Immunology

MICI 1100 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. Melanie Coombs	Melanie.coombs@dal.ca	Available by appointment

Course Description

An introduction to microbiology and infectious diseases designed for healthcare professionals. It includes a study of the structure and physiology of microorganisms, the ways microorganisms cause disease in man and the way they affect human's well being.

Course Prerequisites

This course is meant for students in the Health Sciences.

Course Exclusions

This course is restricted to Nursing and Kinesiology students. It is not for students registered in the Faculty of Science.

Student Resources

Students will learn the material from recorded lectures mainly from the in-class version of the course and will use the textbook to supplement learning. These lectures will be posted each week for students to view. There is no set time that students must be online for lectures or discussions. The assignment must all be completed by the set due date (but may be completed in advance). Weekly questions are optional and will go toward bonus marks. Please note that

the tests are in-person on campus. Please let me know if you are not nearby and we can discuss in-person proctoring options.

Course Structure

Course Delivery

Lectures are online (asynchronous) and available in Brightspace per the suggested schedule, tests are in-person on campus (or you make arrangements for invigilation, contact me within the first 2 weeks of the course if you are not near campus and anticipate needing this).

Details for learning expectations can be found on the Brightspace course. In brief, students will participate in self-directed learning through a combination of: going through the slides, watching/listening to recorded lectures (listening to lectures is mandatory), supplementing learning by reading the text, and optionally doing practice questions. Students' learning will be assessed through 3 tests and an assignment that contains case studies.

Lectures

Available online, posted weekly in Brightspace according to the suggested schedule. You are required to view the lectures to prepare for tests.

Course Materials

Textbook: MICROBIOLOGY with Diseases by Body System, 5th edition, Robert Bauman (ISBN-13: 9780135891018) is REQUIRED for MICI 1100. Online access to Mastering Microbiology is optional.

OPTIONS FOR PURCHASING YOUR TEXT:
1. You can buy a textbook from the Dal bookstore (etext options are available here too).
2. You can but through Willo (link available in Brightspace).
3. You can buy an online version of the text directly from the company.
4. You can buy/use a used text.

Please NOTE:
The MICROBIOLOGY with Diseases by Body System text is a valuable resource. It provides many, varied ways to promote learning and active engagement in the course material. It provides animations, which are a valuable part of the learning activities as well as other interactive learning opportunities.

The recorded lectures are available in Brightspace and were prepared and presented by:
Dr. Glenn Patriquin, Dr. David Haldane, and Dr. Ian Davis from the Division of Microbiology at the QEII HSC and Dr. Melanie Coombs your course Coordinator.

Assessment

Assignments

Students, as individuals, will complete an assignment that relates to the course material with a clinical focus. This assessment is open-book and it is expected that you will need to search for answers and make connections throughout multiple lectures. You may use the internet and the textbook to help you work through the assignment but you are asked to work on this as an individual. Students may work on assignments intermittently (start and stop at their own pace). Please make note of the assignment deadline (Nov 20th) as late assignments will not be accepted. Assignment details will be posted in mid-Oct. The assignment will be 10% of your final grade.

Optional quiz questions (bonus)

Students, may complete content-related questions for the course material. These will be updated and posted each week. Questions are in our Brightspace course and are there to help you feel comfortable with the material. You will be able to re-try the quizzes an unlimited amount of times up until the final exam. The highest grade attained will be used toward bonus marks. Final grades from these optional questions will be recorded and will result in a proportion of a bonus mark which will give you up to an additional 3% on your final grade. These quizzes will help your understanding of concepts.

Tests

- The tests cover concepts presented in lecture slides and recordings. The focus for each test will be material in lectures presented after the last test but some may come from the entire term as some concepts build throughout the term.
- The 3 tests will each consist of 35 multiple-choice questions that come directly from the lecture videos or slides.
- The tests will be in-person on campus. If you are not near the Halifax campus, you may arrange for an invigilator, but you will need to discuss this option with me within the first 2 weeks of the course. You will additionally need to confirm your invigilator bookings with me 1 week before each test. You are responsible for covering any fees associated with arranging an invigilator if needed.

Assessment	Weight (% of final grade)	Date
Assignment - Case studies	10%	due Nov 20th (end of the day)
Test 1	30%	Tue Oct 1 (7-8 pm)
Test 2	30%	Wed Oct 30 (7-8 pm)
Test 3	30%	To be announced by the registrar

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

- Missed tests/exams: Missed tests/exams, without a valid excuse sent via email in advance of the test time, will result in a grade of zero. If you need an extension due to a valid excuse for a deadline you will need to contact me via email (melanie.coombs@dal.ca) in advance of the deadline. Requests after a deadline will not be considered.

- Tests/exams: The tests/exams are in person. Contact me if you will be arranging an invigilated test/exam within the first 2 weeks of class if you are not near campus. You are responsible for covering any fees associated with arranging an invigilator if needed.

- The assignment must be submitted by 11:59 pm on the due date. Late assignments will not be accepted. If you need an extension due to a valid excuse on a deadline you will need to contact me in advance of the deadline. Requests after a deadline will not be considered.

- Do not ask me to generate new assignments or tests for you as each student has the same opportunities for grades in this course.

Course Policies related to Academic Integrity

All coursework must be completed individually, including the assignment and all tests. Make sure you are familiar with Dalhousie's academic integrity policies: https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Learning Objectives

Upon completion of the course, students will be able to:

1. Identify and describe the general characteristics of microorganisms in terms of their structure, function, genetics and growth.

2. Recognize key features of both microbial and viral diseases in human body systems.

3. Use their knowledge of immunology to explore the impacts of infectious disease, and immunization on the health of the general population.

4. Examine microbiology and immunology and how it contributes to clinical discoveries and treatments in infectious disease.

Course Content

Basics of bacteria, antimicrobials, common infections, respiratory infections, virology, infection control, mycology, parasitology and laboratory processes.

Schedule

Note this schedule is here as a guideline to help keep you on track. The lectures are pre-recorded and will be posted each week. The textbook pages are meant to supplement learning. Test material comes from lectures, so make sure you are making notes while you are going through them.

Lecture Hour No.	Date	Topic	Presenter	Relevant textbook pages
1	Sep 4	Introduction: Class Organization, Historical Development, Bacterial Morphology & Taxonomy	GP	2-4; 7-9; 13-14; 61-76; 112-116
2	Sep 6	Taxonomy, Structures,	GP	
3	Sep 9	Bacterial Growth Requirements, Metabolism	DH	125-143; 262-278; 411-429; 224-226
4	Sep 11	Sterilization, Disinfection,	DH	
5	Sep 13	Bacterial Pathogenicity, Virulence, and Bacterial genetics	DH	
6	Sep 16	Antibiotics (General Principles)	MC	286-304; 551-568
7	Sep 18	Antibiotics (Agents Active Against Cell Wall Synthesis, Protein Synthesis, and Others)	MC	
8	Sep 20	Skin, Bone, and Tissue Infections (Staphylococci, Streptococci, Anaerobes)	GP	
9	Sep 23	Diarrhea and Intra-abdominal Infections (including Enteropathogens and C. difficile)	DH	710-725; 672-675; 680-683; 685-689
10	Sep 25	Respiratory Infections I (Pneumococci, Haemophilus, Pertussis)	MC	

Lecture Hour No.	Date	Topic	Presenter	Relevant textbook pages
11	Sep 27	Respiratory Infections II (Tuberculosis and Agents of Atypical Pneumonias)	MC	
--	Sep 30	**National Day for Truth and Reconciliation, University closed**	--	
	Tue Oct 1 (7 pm)	**First Test (Lectures 1-11)**		
12	Oct 2	Sexually Transmitted Disease (Gonorrhea, Chlamydia, HSV, and Syphilis)	GP	757; 760-769
13	Oct 4	Urinary Tract Infections (Gram Negatives)	MC	752-753; 630-636; 596-601; 610
14	Oct 7	Meningitis, Endocarditis, and Bloodstream Infections (including Meningococci, viridans streptococci, and coag neg Staphylococci)	GP	
15	Oct 9	Molecular methods/epidemiology	MC	
16	Oct 11	Virology (Introduction)	MC	382-383, 385-391; 394-397; 571-576; 645-648; 537-544
---	Oct 14	**Thanksgiving - University closed**		
17	Oct 16	Virology (Herpes Viruses)	MC	
18	Oct 18	Virology (HIV and AIDS)	MC	
19	Oct 21	Virology (Hepatitis Viruses)	MC	729-732; 690-697; 574-581; 727-728
20	Oct 23	Virology (Respiratory Viruses)	MC	
21	Oct 25	Virology (Childhood Viruses)	MC	
22	Oct 28	Virology (Enteric, HPV and miscellaneous viruses)	DH	728-729; 573-574
	Wed Oct 30 (7 pm)	**Second Test (includes lectures 12-22)**		
23	Nov 1	Infection Control	ID	431-438
24	Nov 4	Lyme, Q fever, and Rickettsial disease	DH	640-643; 566-567; 645; 617; 606-616; 638-640; 649-653
25	Nov 6	Infections of International Public Health Significance	DH	
26	Nov 8	The Immunocompromised Host	GP	
---	**Nov 11**	**Remembrance Day - University closed**	---	
---	**Nov 13**	**Fall Study Break – University closed**	---	
---	**Nov 15**	**Fall Study Break – University closed**	---	
27	Nov 18	Immunization and Vaccines 1	GP	500-516
---	**Nov 20**	**Case study assignment due (end of the day)**	---	
28	Nov 20	Immunization and Vaccines 2	GP	
29	Nov 22	Immunology in Diagnostic Testing	GP	
30	Nov 25	Mycology	DH	581-586; 618-619; 698-703; 654-658; 732-740; 769-770
31	Nov 27	Parasitology	DH	

Lecture Hour No.	Date	Topic	Presenter	Relevant textbook pages
32	Nov 29	Use of Laboratory and Collection of Specimens	DH	None
33	Dec 2	Specimen processing in the Laboratory	DH	
	TBD	**Third Test (includes lectures 23-33)**		

Presenter abbreviations:

GP: Dr. Glenn Patriquin

DH: Dr. David Haldane

MC: Dr. Melanie Coombs

ID: Dr. Ian Davis

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. Additional information regarding the Indigenous Student Centre can be found at: 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

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) 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

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

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.