

Essentials of Microbiology

MBIO 1220 - Syllabus

Welcome to the University of Manitoba's Essentials of Microbiology offered through Distance and Online education. This course will introduce you to the world of microorganisms, their role in our lives, and their impact on human health and disease.

Instructor contact information

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Course description

The University of Manitoba Undergraduate Calendar describes MBIO 1220, Essentials of Microbiology, as follows:

An introduction to the essential principles of microbiology including immunity, with emphasis on microbial disease. Not available to students who have previously obtained credit in or are currently enrolled in MBIO 1010 or MBIO 1011 (or the former MBIO 2100 or MBIO 2101). NOTE: MBIO 1220 is intended for students planning to enter the College of Nursing or other health care or related programs. Students that have completed MBIO 1010 but wish to take MBIO 1220 to satisfy Faculty of Nursing entrance requirements must obtain departmental permission prior to registering for MBIO 1220. MBIO 1220 cannot be used to satisfy the requirements of the Microbiology Honours or Major degree programs. MBIO 1220 can be used as an elective course in any Science program.

Course objectives

Upon completion of the course, you should be able to:

1. Recognize that microorganisms are all around us, and outline both harmful and beneficial roles they play in our environment.
2. Describe the basic structural features, metabolism, growth and genetics of bacteria, viruses, and eukaryotic microorganisms.
3. Describe the major components of the human immune system and discuss the use of vaccines to prevent disease.
4. Discuss the microbiome and its role in human health.
5. Explain how disease-causing microbes are spread, and how they interact with their hosts to cause illness.
6. List the major groups of antimicrobial drugs, and discriminate between drugs used to treat bacterial, viral, and eukaryotic infections.
7. Name the causative agent and summarize the transmission, progression, treatment, and prevention of some of the most important infectious diseases.

Course materials

Required

The following required materials are available for purchase from the [University of Manitoba Bookstore](#). Please order your materials immediately, if you have not already done so.

Anderson, D. E., S. Salm and M. Beins (2022). *Nester's Microbiology: A Human Perspective*. 10th ed. New York, NY: McGraw-Hill. (The older 9th edition is also acceptable.)

Please note: the online access code for the textbook is not required for this course.

Minimum technology requirements

Students enrolled in this course must ensure they satisfy the following minimum technological requirements:

1. A computing device where one can create and edit documents,
2. An internet connection capable of streaming videos and downloading software, and
3. Access to a webcam and microphone.

Course overview

There are 3 modules in the course each consisting of numerous units. Note that textbook chapters 9–11, as well as chapters 28–30, are not covered in this course.

Topics

- Module 1 Life and Death of Microorganisms
- Module 2 Microorganisms and Humans
- Module 3 Infectious Diseases

Learning activities

Unit activities will include assigned readings from the textbook (the summaries and/or guidelines provided with the reading list will direct you to the examinable parts of each textbook section), reading the study notes in this course manual and completing the self-tests in each unit. As an additional note about the course readings, there is a lot of material to read for this course. You will study two or three units every week. The course will make extensive use of the summary tables in many of the chapters, and you will be guided to these summary tables frequently throughout the course.

Use the course schedule to stay on track in the course so that you do not fall behind.

The midterm exam dates are outlined in the next section. Note that it is very important to complete the assigned readings for each unit on time to ensure that you will have sufficient time to review your materials before the final exam. Also note that textbook chapters 9–11 and chapters 28–30 will not be required reading for the course.

Evaluation and grading

Distribution of marks

Evaluation	Percentage
Weekly unit quizzes	20%

Midterm test 1	20%
Midterm test 2	20%
Final examination	<u>40%</u>
Total	100%

Weekly unit quizzes

These short quizzes will be due at the end of each week. The quizzes test only the material covered in the units and assigned readings for the week given and are meant to keep you from falling behind in the course. They are fully open book and will normally be available at the beginning of each week, and due at the end of the week (ie. Every Saturday, although you're encouraged to get them done early). There will be 12 quizzes, and your 20% quiz mark will be the average of your best 10.

Midterm tests

Midterm tests will be open book, multiple choice tests, with a one-hour time limit, and will be given online. You will be given a 24-hour window in which to write the online midterm tests. You can find detailed instructions on how to access the midterm tests on the course UM Learn site as well as the exact dates that the midterm tests will be available.

Final exam

The final examination for the course will be a two-hour, open book exam scheduled by the Registrar's office. The final exam must be written online at the time scheduled, and you must remain available throughout the December exam period until the exam date has been finalized.

The final exam will consist of 80 multiple choice questions that cover material from all units of the course. Students must achieve a minimum mark of 45% on the final exam to receive a passing grade in the course. A sample examination and answer key are available on UM Learn.

Online invigilation

The final exam for this course may be invigilated using Respondus monitor, Zoom, Cisco WebEx, or another invigilation system of the instructor's choosing. If online invigilation is used, you will be notified and given a chance to try the online invigilation system at least one week before the final exam. In the case that online invigilation is used, you will require a working Webcam and microphone to write the exam.

If you foresee problems using online video invigilation (for example, if you don't have a webcam, or if you live outside of Winnipeg and have slow internet access) you are encouraged to contact the instructor well in advance of the exam date to determine if accommodations can be made.

A word of caution about the midterm tests and the final examination

Some students find that they do very well on the midterm exams, but they do not do nearly as well on the final examination. While the midterm exams are intended to be of similar difficulty to the final examination, many students find the material covered at the end of the course to be more challenging than earlier material upon which the midterms will be based.

Please keep this in mind as you prepare for the examination. Follow the course schedule closely, to make sure that you have sufficient time to cover the challenging units at the end of the course. Once you have completed the course material, attempt to write the final practice

exam in under 2 hours. (In other words, write it under the same conditions that you will have for the actual final exam).

Grading scale

Grades for the course will be assigned according to the following table. **Please note that you must obtain a mark of at least 45% on the final exam to obtain a passing grade in the course.**

Letter grade	Percentage range	Description
A+	90 – 100	Exceptional
A	80 – 89	Excellent
B+	75 – 79	Very good
B	70 – 74	Good
C+	65 – 69	Satisfactory
C	60 – 64	Adequate
D	50 – 59	Marginal
F	less than 50	Failure

Policy regarding missed quizzes, tests, and exams

Quizzes

The weekly quizzes are meant to be flexible. You can take them any time up until the end of the week in which they are due. Plan to complete your activities early and you shouldn't miss any quizzes. Only your ten best quizzes will count toward your final grade, so you can miss up to two quizzes without penalty.

Midterm tests

The midterm tests will be open all day on the scheduled date, and you can choose your own start time, so hopefully this will eliminate any scheduling problems. If you cannot write your test on the date scheduled, contact the instructor well in advance to see if an earlier test date can be arranged. Because test answers will be released as soon as the test period is over, it won't be possible to write a test after the date has passed. If you miss a test due to illness, contact the instructor and the 20% value of the test will be re-weighted onto the final exam.

Final exam

Instructors at the University of Manitoba are not allowed to reschedule final exams! Deferred final exams can only be arranged by your home faculty. If you miss a final exam for medical or compassionate reasons, you must contact your home faculty within 2 working days, with documentation, to apply for a deferral.

Academic Integrity

While your quizzes and midterm tests are open book, you are expected to take them by yourself. Taking quizzes and tests as part of a team, or otherwise receiving assistance with quiz and test questions is considered to be inappropriate collaboration and is subject to discipline under the University of Manitoba student bylaws.

You should acquaint yourself with the University's policies on plagiarism, cheating, and examination impersonation as detailed in the General Academic Regulations and Policy section of the University of Manitoba Undergraduate Calendar. Note: These policies are also included on the course UM Learn site in the folder titled "Course information".

Student Accessibility Services

The University of Manitoba is committed to providing an accessible academic community. Student Accessibility Services (SAS) offers academic accommodation supports and services such as note-taking, interpreting, assistive technology, and exam accommodations. Students who have, or think they may have, a disability (e.g. mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation.

Student Accessibility Services
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