



BIOL 223 – MICROBES and SOCIETY

Fall 2025

Territorial acknowledgement: The University of Regina is situated on the territories of the nêhiyawak, Anihšînāpēk, Dakota, Lakota, and Nakoda, and the homeland of the Métis/Michif Nation. The Regina campus is on Treaty 4 lands, and Saskatoon classes are on Treaty 6 lands.

Course Instructor: Dr. Ahmed Khairalla

Office: RIC 326

Office phone: (306) 585-5224

E-mail: please send emails via UR Courses internal email function **only** (You can find more details in page 3).

Lectures: The class will be delivered face-to-face: MW: 11:30 am - 12:45 pm.

Lecture room: Classroom Building 130

Office hours:

- The instructor is available whenever they are in their office with the door open.
- Appointments with the instructor can also be scheduled via email through the UR Courses email function.

All times are local Regina time.

Course summary and Objectives

Course Description

Microbes play a critically important role in the environment and human society. This course will introduce students to relevant environmental issues and the potential role of microbes in sustainable development. The course will also explore how the microbes affect our health and disease and how they can be exploited to the benefit of humans.

Course Objectives

1. Students will develop and demonstrate proficiency in understanding the role of microbes in ecosystem function and their applications in environmental management.
2. Students will develop and demonstrate proficiency in understanding the role microorganisms play in our health and disease.
3. Students will be able apply their knowledge to a variety of areas such as medicine, food microbiology, nutritional science, agricultural and environmental sciences.

Mode of Instruction and Teaching Strategies

▪ **Class Delivery**

All lectures will be delivered in person, via face-to-face instruction at the UofR main campus, with a strong emphasis on student participation and problem solving.

There will be a short discussion at the end of each topic (or a couple of topics). The aim of these is to provide the students with opportunities to share their ideas with each other and their instructor. I encourage students to ask questions during these lectures to clarify any concepts with which they are having difficulty. Additionally, the various activities included in these lectures, e.g., giving feedback in pairs, small group discussions, gamification activities via Kahoot, and other practical activities will engage students and enable a deeper understanding of the related issues.

▪ **Term Tests and Quizzes**

To assess student learning, there will be quizzes, consisting predominantly of multiple-choice questions.

There will be 3 term tests in this course. These three tests will be held in-person, during the scheduled class time (the dates are on the lecture schedule; pages 6-7).

Course Expectations and Policies

▪ **Attendance Policy**

Lecture attendance is strongly recommended for optimal learning. Attendance is required for quizzes, term tests and make-up test (if needed).

▪ **Lecture Expectations**

Every student is expected to be prepared for each class by having read all course materials and prepared the cases and / or quizzes. Also, everyone is also expected to participate fully in class, contributing to your peers and your own learning. Please be familiar with this Course Outline and its requirements.

▪ **Recording of Materials**

Lectures will not be recorded for privacy reasons, and you may not record any portion of a lecture (either in audio or visual formats) without the prior and explicit written permission of the lecturer.

▪ **Microbiology in the News Assignment**

This individual assignment invites you to explore how microbiology intersects with daily life through a creative and analytical approach. You will begin by selecting a news article that illustrates the impact or application of microbes in society. Based on this, you'll write a brief scientific background (~250 words) summarizing the key microbiological concepts and relevance. Using this foundation, you will design a one-page infographic that visually communicates the main ideas, highlights real-world implications, and connects to broader microbiological themes. To complete the assignment, you will present a 4–5 minute in-person pitch using your infographic, followed by a brief Q&A with a TA. Both the written background and infographic are due by November 17, 2025, at 11:59 pm, and the pitch must be scheduled with a TA between November 18 and December 5, 2025.

- **Contacting Instructor**

Students are encouraged to contact the instructor if they have any questions regarding the course or its content, and an appointment can be set up if needed. The preferred method of communication in this course is through the UR Courses Internal email function. Please do not send emails to personal URegina email address during the semester and don't send URCourses "Messages" (chat) (Please refer for the illustration below). Please be patient. Allow a reasonable amount of time to receive a response back – usually 24 hours during the week and longer during weekends.



- **Technical Support**

Contact IT Support for any technical assistance (IT.Support@uregina.ca or 306.585.4685).

Required Materials/ Resources

- **Course Website**

A UR Courses site is available for this course and will be continually updated with lecture outlines and supplementary material. Login at <https://urcourses.uregina.ca/login/index.php> using your uregina.ca username and password.

Please visit UR Courses before every class to ensure you have updated information and access to any extra resources. I regularly post messages on URCourses.

- **Textbook**

No textbook is required for this course, and a multitude of resources that will help you to study the concepts covered in the course will be uploaded to the UR Courses website.

Evaluation

You must achieve at least 50% to pass the course. The mark distribution is as follows:

Assessment		Value	Notes
Term Test #1 (Sep. 29)		25%	Covers topics 1-4, 75 minutes
Term Test #2 (Nov. 3)		25%	Covers topics 5-7, 75 minutes
Term Test #3 (Dec. 1)		25%	Covers topics 8-11, 75 minutes
Microbiology in the News Assignment	Written background	5%	Due on Nov. 17 at 11:59 pm.
	Infographic	5%	Due on Nov. 17 at 11:59 pm.
	Pitch	5%	Scheduled by appointment with a TA, between Nov 18–Dec 5
Quizzes (5 × 2%) *		10%	*With usually about 7 such quizzes per semester, only the highest 5 quizzes will count towards your final mark
MAKE-UP TEST			Wednesday, December 3, during lecture time The make-up test will ONLY be provided in extenuating circumstances with documented evidence of the circumstances provided to the course instructor immediately, and is evaluated on a case-by-case basis. The content and format of the make-up test will be the same as the test that was missed.

Policies and Procedures for Marks and Term tests

- This course **does not have a final exam**.
- In addition to **quizzes**, there will be **three term tests**, all held in **Classroom Building, Room 130 (CL 130)** during the scheduled class time (11:30 am -12:45 pm).
- The term tests and quizzes are to be completed individually and are **NOT open book**.
- The **term tests** are **not cumulative** in terms of specific questions, but you are expected to understand and make connections to concepts covered in previous evaluations.
- Since they are non-cumulative, the term tests cannot replace each other (in other words, **all students are expected to write all three term tests**).

- **Missing a quiz will result in a grade of zero for the quiz.**
- If a student misses a term test, the student must email the instructor immediately (within **48 hours**) explaining the situation and providing any necessary documentation.
- The **make-up test will ONLY be offered in extenuating circumstances** (e.g., urgent medical appointments, personal emergencies, counseling, or a funeral). Clear, dated documentation of the circumstances must be provided to the course instructor within **48 hours of the scheduled test date, including weekends, not just workdays**. The request will be evaluated on a case-by-case basis.
- **Make-up test(s) for approved students will be held on December 3, during lecture time.**
- **If a student misses a term test and does not receive approval or fails to contact the instructor within 48 hours of the scheduled test time (including weekends), a grade of 0% will be assigned for that test.**
- **“Deferred” final exams can only be granted by the Associate Dean, Academic** (for Faculty of Science students), or by the Deans and/or Associate Deans of other Faculties or Federated Colleges. Course instructors cannot grant deferred final exams.

- **Grades posted on URCourses are provisional and unofficial.** They are subject to review and approval and may change after final assessment.
- Final marks for the course are based on a total assessment of each student's record. **It is a student's responsibility to make sure that their marks are complete and correct.**

- If there is an issue with one of your grades, you must notify the instructor in writing using the **Grade Re-evaluation Request Form** (the form can be accessed by using the UR Courses website). The completed form **MUST** be sent in an email to the course instructor **within 4 business days** of receiving the grade. Please do not resubmit it to the UR Courses website.
- Students have **20 business days** from the date they receive their grade **to initiate an appeal**. Please refer to the **Academic Calendar** for specific procedures:
<https://www.uregina.ca/registrar/assets/docs/pdf/calendar/2025-2026.pdf>
- This course falls under the Academic Regulations of the University of Regina and the Faculty of Science (these regulations are printed in the General Calendar, available at <https://www.uregina.ca/student/registrar/resources-for-students/academic-calendars-and-schedule/undergraduate-calendar/index.html>)

- **All students' course grades are determined based on the same graded components and a consistent rubric.** Individual grades will not be adjusted on an arbitrary basis.
- **The grading scheme for the course is the same for all students in the course.** There is no opportunity to boost a grade by doing “extra work”, and there are no adjustments to grade allocations for the various tests and assignments.
- There are **no alternative assignments** that can be completed by students for the purpose of increasing their final grade.
- **The value of a term test or a quiz cannot be transferred to any other course component.**
- **Term tests and quizzes cannot be retaken** under any circumstances.
- **The minimum passing grade for this course is 50%.**

Important Dates

Sep. 2	Start of the Fall 2025 term
Sep. 29	Term test # 1
Oct. 13	Thanksgiving Day (no classes)
Nov. 3	Term test # 2
Nov. 10-16	Fall break (no classes)
Nov. 17	Due date for the infographic assignment Due date for both the written background + infographic components Microbiology in the news assignment (Nov. 17, at 11:59 pm).
Nov 18–Dec 5	In-Person Pitch of the Microbiology in the news assignment is to be scheduled by appointment with a TA
Dec. 1	Term test # 3
Dec. 3	Make-up test (if needed)
Dec. 9 – 22	December final exam period. BIOL 2230 will not have a final exam.

Tentative Lecture schedule

This is a tentative schedule. All dates and topics are subject to change as conditions dictate.

Week #	Topic*	Assignments / Quizzes
Introduction to Microbial World		
Week 1 Sep. 1 – Sep. 5	Introduction to the course Topic 1: Introduction to the Microbial World	
Week 2 Sep. 8 – Sep. 12	Topic 2: Microbial Genetics and Genetic Engineering	
Microbes in Industry, Biotechnology, Agriculture, and Environment		
Week 3 Sep. 15 – Sep. 19	Topic 3: Microbes in Ecosystem Functions and Interactions	Quiz 1, Sep. 15, during class time, Topics 1-2
Week 4 Sep. 22 – Sep. 26	Topic 4: Microbes in Environmental Management	Quiz 2, Sep. 24, during class time, Topics 3-4
Week 5 Sep. 29 – Oct. 3	Term test # 1: Monday Sep. 29 (written in class time) Topic 5: Microbes in Food, Biotechnology, Industry, and Medicine (Part 1)	
Week 6 Oct. 6 – Oct. 10	Topic 5: Microbes in Food, Biotechnology, Industry, and Medicine (Part 1) <i>(Cont.)</i> Topic 6: Microbes in Food, Biotechnology, Industry, and Medicine (Part 2)	Quiz 3, Oct. 8, during class time, Topic 5
Week 7 Oct. 13 – Oct. 17	Topic 6: Microbes in Food, Biotechnology, Industry, and Medicine (Part 2) <i>(Cont.)</i>	
Week 8 Oct. 20 – Oct. 24	Topic 7: Microbes in Food, Biotechnology, Industry, and Medicine (Part 3) Topic 8: Microbial Pathogenesis and Host Defenses	Quiz 4, Oct. 22, during class time, Topics 6-7
Microbes in Human Health		
Week 9 Oct. 27 – Oct. 31	Topic 8: Microbial Pathogenesis and Host Defenses <i>(Cont.)</i> Topic 9: The Human Microbiome and Health	Quiz 5, Oct. 29, during class time, Topic 8
Week 10 Nov. 3 – Nov. 7	Term test # 2: Monday Nov. 3 (written in class time) Topic 9: The Human Microbiome and Health	
Week 11 Nov. 10 – Nov. 14	Fall break (no classes)	
Week 12 Nov. 17 – Nov. 21	Topic 10: Bacterial and Viral Infectious Diseases	Due date for both the written background + infographic components of the Microbiology in the news assignment is Nov. 17, at 11:59 pm.
Week 13 Nov. 24 – Nov. 28	Topic 11: Vaccines and Antimicrobial Therapies	Quiz 6, Nov. 19, during class time, Topics 9-10

		Quiz 7, Nov. 26, during class time, Topic 11
Week 14 Dec.1- Dec. 5	Term test # 3: Monday Dec. 1 (written in class time) Make-up test (if needed): Wednesday Dec. 3 (written in class time)	
December final exam period Dec. 9 – 22	BIOL 223 will not have a final exam.	

* This schedule is tentative and may be subject to change as required

** In-Person Pitch of the Microbiology in the news assignment is to be scheduled by appointment with a TA, between **Nov 18–Dec 5, 2025**

Important Note

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If any modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their UofR email and UR Courses website weekly during the term and to note any changes. Changes will be communicated through regular communication channels, such as UR Courses website and/or UofR email.

Late submission of work/missed exam policy: Late submissions will be subject to penalties. Please refer to the assignment guidelines for full details. If you miss a term test, contact the instructor immediately and provide valid documentation. Deferred" final exams are granted only by the Associate Dean, Undergraduate (for Faculty of Science students), or by the Deans and/or Assistant Deans of other Faculties or Federated Colleges. There are no exceptions.

Academic integrity: Academic integrity requires students be honest. Quizzes and exams are to help students learn; grades show how fully this goal is attained. Thus, all work and grades should result from a student's own understanding and effort.

Students are expected to complete assignments, tests, and other academic evaluations using their own knowledge and abilities. The use of generative AI tools, including but not limited to ChatGPT, is considered a breach of this expectation.

Acts of academic misconduct violate academic integrity, and are considered serious offences by the University. Examples include, but are not limited to, cheating on tests or exams, plagiarizing, copying from others, falsifying lab results, etc. Instances of academic misconduct will be reported to the Associate Dean Academic for investigation. Similarly, any use of generative AI tools in academic work is considered academic misconduct and will be reported to an investigating Dean. Full details are provided in the [Undergraduate academic calendar](#). Students are encouraged to understand their obligations as a student, as well as their rights.

Accommodations: Students in this course who may have need for specialized accommodations, should contact the Centre for Student Accessibility (Riddell Centre 229, 585-4631), and must discuss their accommodation letter with their instructor.