Course Description
An introduction to the general principles of microbiology including cell structure, physiology, and molecular microbiology utilizing examples from ecologically beneficial as well as industrially relevant and pathogenic microbes.

Lectures
Instructor:
Diana Mlinar
Email: Diana.Mlinar@ad.umanitoba.ca
Office: 421 Buller Building

Effective September 1, 2013, the U of M will only use your university email account for official communications, including messages from your instructors, department or faculty, academic advisors, and other administrative offices. Visit http://umanitoba.ca/ist/email/studentemailindex.html for more information.

Required material
Brock Biology of Microorganisms 16th edition (Madigan, Martinko, Bender, Buckley and Stahl).

All course information included lecture presentations can be found on UM Learn at umanitoba.ca/d2l. You will need your UMNet Id and password to login.

Course Evaluation
Lecture: (80%)
Both lecture sections will have a mid-term exam and a final exam.

Tentative examination schedule:
Midterm Exam* 30% 40 Multiple choice questions – Wednesday October 26, 2022: 545pm-645pm (location to be announced)
Final exam 50% 80 Multiple choice questions, date and time to be announced (scheduled by the university).

There will be no deferred midterm exam. Students who miss the mid-term exam will write a final exam worth 30% more (e.g. 80% versus 50%).

The final exam will cover all material outlined later in the syllabus, lectures and material posted on UM Learn.
**Laboratory:** (20%)*
Lab term work  8%  Includes lab quizzes given online through UM Learn.
Lab exam  12%  Short answer questions and lab stations, date is given in the lab manual.

* A mark of 10 out of 20 in the lab section is required to pass the course. Lab marks are determined independently of marks obtained on the lecture midterm and final exams.

Because the laboratory and class material are integrated, knowledge of the laboratory material is expected for both the midterms and the course final.

**Laboratory**
**Instructor:** Dr. Chris Rathgeber  
**Office:** 419 Buller Building  
**Email:** Chris.Rathgeber@umanitoba.ca  
**Phone:** 474-9967

Please note: Lab attendance is compulsory. Labs may NOT be made up the following week. If you miss a lab for medical or another legitimate reason, see the instructor as soon as possible (with official documentation) to determine if arrangements can be made to complete the missed lab work and/or assignments. Marks will not be awarded for assignments submitted based on lab work that you did not complete. If you are absent for 2 or more labs without providing official documentation for legitimate absences, you will receive a failing grade for the course.

Approximate grading scheme:

Letter grades are assigned taking into consideration the grade distribution in the class and the University of Manitoba’s descriptors A+ (Outstanding), A (Excellent), B+ (Very Good), B (Good), C+ (Satisfactory), C (Adequate), D (Marginal), F (Failure); see http://umanitoba.ca/student/records/grades/686.html

The grading scheme generally but not exactly follows that used by the Rady College of Medicine https://umanitoba.ca/faculties/health_sciences/medicine/admissions/8847.html.

A+ (>90%), A (80-89.9%), B+ (75-79.9%), B (70-74.9%), C+ (65-69.9%), C (60.0-64.9%), D (50-59.9%), F (<50%).
**Course overview** - Topics may be added or removed due to time constraints.

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Course topics, continued

Domain *Archaea*
- *Euryarchaeota* 17.1 – 17.4
- *Thaumarchaeota, Nanoarchaeota and Korarchaeota* 17.5 – 17.7
- *Crenarchaeota* 17.8 – 17.10

Part 5: Immunity and host defense
- Overview of innate immunity 26.2
- Physical and chemical barriers 26.3
- Cells of the immune system 26.1
- Innate immunity 26.1
- Innate response mechanisms 26.5-26.7
- Inflammation and Fever 26.8
- Adaptive response properties 27.1
- Primary and secondary immune response 27.3
- Immunogens and antigens 27.2

Part 6: Antimicrobial drugs and drug resistance
- Antimicrobial drugs 28.10 – 28.11
- Antimicrobial Drug Susceptibility Testing 27.5
- Antimicrobial drug resistance 28.4

Part 7: Medical microbiology
- Normal human microbial interactions 24.1-24.5
- Pathogenesis 25.1 – 25.8
- Superantigens: Overactivation of T cells 25.7
- Microbiological identification of pathogens 28.1-28.3
- Growth independent diagnostic methods 28.5 – 28.8

Part 8: Applied Microbiology
- Food Microbiology various sources
- Genetic engineering and biotechnology various sources
**Student Responsibilities**

It is your responsibility to make sure that all eligibility requirements are met to be registered in this class. This means:

- You have taken the appropriate prerequisites, as noted by the calendar description, or have documented permission from the instructor to waive these prerequisites.
- You have not previously taken, and are not concurrently registered in this course and another that has been identified as "not to be held with".

It is your responsibility to make sure you understand the rules regarding cheating and plagiarism at the University of Manitoba.

- Read the Faculty of Science Statement on Academic Misconduct (can be found below)
- Refer to the student discipline bylaw and academic integrity information in the University of Manitoba Academic calendar: [http://umanitoba.ca/calendar](http://umanitoba.ca/calendar)
- Read statements on academic misconduct, including plagiarism, cheating and examination impersonation found on the Faculty of Science webpages: [http://umanitoba.ca/faculties/science/undergrad/resources/webdisciplinedocuments.html](http://umanitoba.ca/faculties/science/undergrad/resources/webdisciplinedocuments.html).
- In cases of cheating during examinations, the test in question will be given a grade of 0% and the student will be reported to the appropriate authorities for disciplinary action.

**Faculty of Science Statement on Academic Misconduct**

The Faculty of Science and The University of Manitoba regard acts of academic misconduct in quizzes, tests, examinations, laboratory reports or assignments as serious offences and may assess a variety of penalties depending on the nature of the offence.

Acts of academic misconduct include, but are not limited to bringing unauthorized materials into a test or exam, copying from another individual, using answers provided by tutors, plagiarism, and examination personation.

*Note: cell phones, pagers, PDAs, MP3 units or electronic translators are explicitly listed as unauthorized materials, and must not be present during tests or examinations.*

Penalties that may apply, as provided for under the University of Manitoba's Student Discipline By-Law, range from a grade of zero for the assignment or examination, failure in the course, to expulsion from the University. The Student Discipline By-Law may be accessed at: [http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html](http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html)

Suggested minimum penalties assessed by the Faculty of Science for acts of academic dishonesty are available on the Faculty of Science web-page: [http://umanitoba.ca/faculties/science/undergrad/resources/webdisciplinedocuments.html](http://umanitoba.ca/faculties/science/undergrad/resources/webdisciplinedocuments.html)

All Faculty members (and their teaching assistants) have been instructed to be vigilant and report all incidents of academic dishonesty to the Head of the Department.
Lab information

Instructor
Dr Chris Rathgeber
Email: chris.rathgeber@umanitoba.ca
Office: 419 Buller building
Phone: 204-474-9967
Office hours: I am available for meetings on Mon, Wed, Fri mornings. Please email me for an appointment. I’m also available for consultation in the lab room during your scheduled period.

Laboratory grade: (20%)*
The lab counts for 20% of your final grade in the course and marks will be allocated as follows:
- Lab safety quiz = 1%
- 3 lab assignments (1% each) = 3%
- 2 lab quizzes (online, 2% each) = 4%
- Final lab exam = 12%

* Note that to pass the course, you must:
- Achieve a minimum 10 out of 20 in the lab.
- Attend at least 6 out of 8 scheduled lab periods.

Check the lab schedule on UM Learn for quiz, exam, and lab assignment due dates.

Lab attendance
All labs this term will be held in-person, in room 312 Buller, during your scheduled lab period. See the official lab schedule on UM Learn for the weeks that you have labs.

Lab attendance is mandatory. Because all lab sections are full, you must attend the lab period for which you are registered on Aurora. Make-up labs for missed lab periods are not possible.

In case of illness – The most important thing to remember is that if you are sick… Stay Home! Official university policy (at the time of this writing) is that if you are fully vaccinated, and you test positive for Covid or develop Covid like symptoms, you should stay home for at least 5 days. After 5 days if you have no fever, and your symptoms are improving, you can return to class. If you are unvaccinated and you test positive for Covid, you must stay home for at least 10 days.

Missed labs – You can miss up to two lab periods due to illness (no doctor’s note required.) If you miss a lab, you should send the self-declaration of temporary absence form to the lab instructor by email. While it is not possible to do make up labs, it may be possible to makeup some of the missed experiments. Speak to the teaching assistants upon your return, and they will help you to decide which experiments can still be completed. In any case, you will still be responsible for the lab material for your quizzes and lab exam. The lab reviews that appear on UM Learn after each lab period are excellent resources for studying, especially if you have missed a lab.

Please note that you can miss a maximum of two lab periods. If you miss any more than two, you will not have completed the lab requirement for this class, and you will receive a failing grade in the course.

Lab exemptions
Lab exemptions are available to students who have previously taken the course and completed the lab section with a minimum grade of 60% in the lab. For permission to register for the lab exemption, or to see if you qualify, email the instructor.