

COURSE SYLLABUS



COURSE TITLE: BIOL-202-Microbiology 1

CLASS SECTION: 001AB

TERM: 2024F

COURSE CREDITS: 3

DELIVERY METHOD(S): In person/In lab

Camosun College respectfully acknowledges that our campuses are situated on the territories of the Ləkʷəŋən (Songhees and Kosapsum) and WSÁNEĆ peoples. We honour their knowledge and welcome to all students who seek education here.

INSTRUCTOR DETAILS

NAME: Ryan Suleman MSc RMCCM

EMAIL: suleman@camosun.ca

OFFICE: F250D

- HOURS: [Office Hours](#):
- Monday: 11:30 - 12:30 pm (In-person F250D)
- Wednesday: 12:00-1:00pm (In-person F250D)
- 3:00pm-4:30pm (Virtual by Zoom) or by appointment over Teams/Zoom

As your course instructor, I endeavour to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me. Camosun College is committed to identifying and removing institutional and social barriers that prevent access and impede success.

CALENDAR DESCRIPTION

An introduction to the principles and techniques of microbiology. Topics include: prokaryotic cell structure and physiology, nutrition, metabolic diversity, growth and control of micro-organisms and virology.

PREREQUISITE(S):

All of:

C in BIOL 126

CO-REQUISITE(S):

EQUIVALENCIES:

COURSE LEARNING OUTCOMES / OBJECTIVES

Upon successful completion of this course, a student will be able to:

Demonstrate detailed knowledge of prokaryotic cell structure, function and physiology. Compare and contrast, at the molecular level, the distinguishing characteristics of the Gram-positive and Gram-negative Bacteria and the Archaea.

Explain the nature of prokaryotic cellular and population growth, and describe the ways growth can be measured. Explain the mechanisms of nutrient acquisition and categorize the nutritional patterns of microorganisms. Discuss the influence of environmental factors on microbial growth.

Compare the effectiveness and identify the appropriate use of physical and chemical agents to achieve decontamination, disinfection and sterilization. Explain the molecular mechanism and spectrum of activity of selected antibacterial and antiviral drugs. Discuss the mechanisms of drug resistance. Outline the induction and mechanisms of programmed cell death.

Discuss the diversity of metabolic strategies employed by bacteria for energy conversion. Compare and contrast heterotrophic ATP generation through the processes of aerobic respiration, anaerobic respiration and fermentation. Explain the events associated with lithotrophic ATP generation.

Describe the characteristics and molecular structure of enveloped and non-enveloped viruses. Describe the replication cycle and quantification of viruses. Compare and contrast, at the molecular level, the replication strategies of DNA and RNA containing animal viruses. Differentiate between the types of virus infectious cycle.

Conduct experiments to demonstrate techniques in microbial staining, culturing, biochemical characterization and enumeration. Collect and assess data; present written laboratory reports.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

Prescott's Microbiology, 12th edition. McGraw-Hill Connect. Should be purchased from Camosun Bookstore as it requires a special code in order to access the Connect resource (Included with purchase).

- Lab coat. The Biology Department will provide you with a lab coat in exchange for a voucher purchased from Camosun bookstore for a fee.

COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY / EVALUATION

The following schedule and course components are subject to change with reasonable advance notice, as deemed appropriate by the instructor.

Lectures: 001AB Monday & Wednesday 12:30pm- 1:50pm F212

Labs: 001A Thursday 9:30am-12:20pm F222

001B Thursday 1:30pm-4:20pm F222

DATE RANGE	COURSE CONTENT	Laboratory
(Week 1) September 2 th -September 6 th	Introduction	Online Safety Quiz & Assignment
(Week 2) September 9 th - September 13 th	Unit 1- Cell Structure & Function Part 1 Unit 1- Cell Structure & Function Part 2	Intro to RG2/Hand Washing Culture Techniques/Colony Morphology
(Week 3) September 16 th -September 20 th	Unit 2- Bacterial Growth and Reproduction Part 1	Bacterial Staining Techniques
(Week 4) September 23 rd - September 27 th	Unit 2- Bacterial Growth and Reproduction Part 2	Bacterial Culture Media- MAC/MSA
(Week 5) September 30 th -October 4 th (No Class Monday)	Unit 2- Bacterial Growth Lecture Assignment	Environmental Growth Influences
(Week 6) October 7 th – October 11 th	Unit 3- Control of Microbial Growth Part 1 (Midterm 1)	Bacterial Enumeration
(Week 7) October 14 th – October 18 th (No Class Monday)	Unit 3- Control of Microbial Growth Part 2	Control of Microbial Growth-Part 1
(Week 8) October 21 st - October 25 th	Unit 4- Microbial Metabolism & ATP	Control of Microbial Growth- Part 2
(Week 9) October 28 th -November 1 st	Unit 4- Microbial Metabolism & ATP (Midterm 2)	Generation Time and Nutrition
(Week 10) November 4 th - November 8 th	Unit 5-Archaea	Virtual Lab & Lab Quiz
(Week 11) November 11 th -November 15 th (No Class Monday)	Unit 6- Microbial Infectious Disease	Biochemical Analysis- Part 1
(Week 12) November 18 th - November 22 nd	Unit 7-Introduction to Animal Viruses	Biochemical Analysis- Part 2
(Week 13) November 25 th - November 29 th	Unit 7- Introduction to Animal Viruses- Part 2 Final Project	Biochemical Analysis- Part 3
(Week 14) December 2 nd -December 6 th	Review & Midterm 3	Lab Exam

Students registered with the Centre for Accessible Learning (CAL) who complete quizzes, tests, and exams with academic accommodations have booking procedures and deadlines with CAL where advanced noticed is

required. Deadlines can be reviewed on the [CAL exams page](https://camosun.ca/services/academic-supports/accessible-learning/academic-accommodations-exams). <https://camosun.ca/services/academic-supports/accessible-learning/academic-accommodations-exams>

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
Midterm 1 (Date: October 9 th)	15
Midterm 2 (Date: October 30 th)	20
Midterm 3 (Date: TBA)	20
Lab Exam (Date: December 6 th)	15
Assigned Readings (Weekly Connect Readings)	10
Pre-Lab Assignments (Completed on D2L)	5
Final Project Presentation (November 27 th)	10
In-class participation & Assignments	5
TOTAL	100%

If you have a concern about a grade you have received for an evaluation, please come and see me as soon as possible. Refer to the [Grade Review and Appeals](#) policy for more information.

<https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf>

Written Work

Lecture and lab assignments may be assigned at the instructor's discretion. It is the student's responsibility to be informed of any work expected and the dates the work is due. Assignments may be intended to be completed as individuals or as groups. The instructor will make clear which is which. Work intended to be submitted by an individual must be completed independently, keeping in mind student conduct requirements. Work intended for completion by a group must not be completed by an individual. Each person in a group will receive the same mark on any group work.

Unless otherwise indicated, all submitted written material (including numerical entries in data tables) must be prepared using word processing (typically MS Word) or graphing software (e.g. Excel). The only exceptions are calculations and some graphs, which may be submitted handwritten or hand drawn. Any exceptions will be clearly indicated. Submitted work that is inappropriately formatted, which includes last-minute handwritten corrections, will not be marked until all formatting is correct. Since properly formatting requires time, this will likely mean a late penalty will be assessed.

Late Penalties

All assignments must be handed in by the time indicated on the assignment. Be sure to submit all assignments on time to avoid deductions. Where possible, late assignments will be graded but marks equivalent to 15% of the total value of the assignment will be deducted for each day (or partial day) past the deadline. For example, an assignment submitted two hours late would be deducted 15%; an assignment submitted 40 hours late would be deducted 30%. Pre-lab assignments may not be submitted after the start of the lab period.

Exams

All exams in this course are cumulative. Dates for lab exams 1 and 2, as well as lecture exams 1 and 2 are set; please refer to the schedule above. Lecture exam 3 will occur during the final exam period and is scheduled by the Registrar's Office. Do not make any December travel plans until the Final Exam Schedule is announced. Should an emergency or issue arise that prevents you from completing an exam at the scheduled time, you are required to contact your instructor ASAP and **before** the noted scheduled time. At that point your instructor will arrange for a deferred exam date with the Assessment Center, or re-weighting overall grade. Failure to obtain prior approval will result in the exam being automatically marked zero. No re-writes are allowed once an exam has been started or attempted. Study guides for each exam will be available on D2L closer to the exam dates.

Laboratory Safety & Attendance

Nothing is more important to the instructor than students enjoying a safe class and lab environment. Consider the following issues:

Lab footwear	<ul style="list-style-type: none">• For safety reasons WorkSafeBC mandates, and federal regulations require, that students are required to wear closed shoes in all lab times. Flip flops, sandals or shoes with holes are not acceptable. Other footwear posing an instability risk (e.g. high heels or bicycle shoes) are prohibited.
Eating & drinking	<ul style="list-style-type: none">• Eating or drinking anything in the lab is a violation of federal regulations, so absolutely nothing may be ingested while in the lab. Chewing gum and applying makeup or lip balm are similarly prohibited. No exceptions will be made, even for medications.• If something must be consumed, then it may be taken out of the lab.
Hair	<ul style="list-style-type: none">• It is recommended that long hair be tied securely to prevent it from being exposed to lab equipment.
Handwashing	<ul style="list-style-type: none">• Hands should be thoroughly washed after removing lab coats and before leaving the lab.

In order to pass the course, students are required to meet the minimum lab attendance, participation and completion requirements.

- Laboratory activities involve practical applications of your knowledge and manual skills development. Development of these skills is a requirement to meet the Course Learning Outcomes.
- Meeting Course Learning Outcomes is a requirement for gaining credit in the course, as well as ensuring articulation, pre-requisite and transferability standards are met.
- Laboratory activities are in-person activities; attendance and participation are required. Online alternatives are not available.
- Laboratory attendance will be monitored by a sign-in/sign-out binder in the lab. It is your responsibility to record your attendance using this binder.
- Attendance from the sign-in/sign-out binder will be transferred to your D2L course page by your instructor. If you notice any discrepancies, please contact your instructor ASAP.
- If you arrive late to the lab, you may miss the opportunity to sign-in, and/or participate in graded assessments such as pre-lab quizzes.

Missed Labs Guidelines

- Students who will miss a laboratory session have an obligation to seek out concessions directly from their instructor in a timely manner, *before* the lab period occurs.
- If notification is provided *after* the lab has occurred, concessions may not be available (please see Student Concessions Policy for further guidance on academic concessions, including possible reasons to request a concession).
- If you miss *up to three (3) laboratory sessions*, you are still eligible to meet the Learning Outcomes for the course.
- Concessions offered for the first three (3) missed laboratory sessions will depend on the reason for laboratory absence and is up to instructor discretion. Concessions may include writing up the laboratory report with provided data, omitting the lab, or other concessions.
- If you miss a total of four (4) or more labs for any reason (including, but not limited to: life circumstances, legitimate illness or family/pet emergency, planned vacations, milestone family events, work commitments, childcare or eldercare commitments, competitive athletic events),

you will be unable to meet the learning outcomes for the class and will receive a failing grade (F) in the entire course, regardless of marks received on graded lab and lecture components. Exceptions will only be considered through an academic concession granted by the instructor or Dean/Associate Dean.

- This guideline applies to in-person laboratory activities only; for missed Lab Exams, please see the section in this outline on Exams.

STUDENT RESPONSIBILITY

Enrolment at Camosun assumes that the student will become a responsible member of the College community. As such, each student will display a positive work ethic, assist in the preservation of College property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

SUPPORTS AND SERVICES FOR STUDENTS

Camosun College offers a number of services to help you succeed in and out of the classroom. For a detailed overview of the supports and services visit camosun.ca/services.

Support Service	Website
Academic Advising	camosun.ca/services/academic-supports/academic-advising
Accessible Learning	camosun.ca/services/academic-supports/accessible-learning
Counselling	camosun.ca/services/health-and-wellness/counselling-centre
Career Services	camosun.ca/services/co-operative-education-and-career-services
Financial Aid and Awards	camosun.ca/registration-records/financial-aid-awards
Help Centres (Math/English/Science)	camosun.ca/services/academic-supports/help-centres
Indigenous Student Support	camosun.ca/programs-courses/iecc/indigenous-student-services
International Student Support	camosun.ca/international
Learning Skills	camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills
Library	camosun.ca/services/library
Office of Student Support	camosun.ca/services/office-student-support

Support Service	Website
Ombudsperson	camosun.ca/services/ombudsperson
Registration	camosun.ca/registration-records/registration
Technology Support	camosun.ca/services/its
Writing Centre	camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills

If you have a mental health concern, please contact Counselling to arrange an appointment as soon as possible. Counselling sessions are available at both campuses during business hours. If you need urgent support after-hours, please contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.

COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

Academic Integrity

Students are expected to comply with all College policy regarding academic integrity; which is about honest and ethical behaviour in your education journey. The following guide is designed to help you understand your responsibilities: <https://camosun.libguides.com/academicintegrity/welcome>

Please visit <https://camosun.ca/sites/default/files/2021-05/e-1.13.pdf> for Camosun's Academic Integrity policy and details for addressing and resolving matters of academic misconduct.

Academic Accommodations for Students with Disabilities

Camosun College is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging appropriate academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a documented disability and think you may need accommodations, you are strongly encouraged to contact the Centre for Accessible Learning (CAL) and register as early as possible. Please visit the CAL website for more information about the process of registering with CAL, including important deadlines:

<https://camosun.ca/cal>

Academic Progress

Please visit <https://camosun.ca/sites/default/files/2023-02/e-1.1.pdf> for further details on how Camosun College monitors students' academic progress and what steps can be taken if a student is at risk of not meeting the College's academic progress standards.

Course Withdrawals Policy

Please visit <https://camosun.ca/sites/default/files/2021-05/e-2.2.pdf> for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit <https://camosun.ca/registration-records/tuition-fees#deadlines>.

Grading Policy

Please visit <https://camosun.ca/sites/default/files/2021-05/e-1.5.pdf> for further details about grading.

Grade Review and Appeals

Please visit <https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf> for policy relating to requests for review and appeal of grades.

Medical / Compassionate Withdrawals

Students who are incapacitated and unable to complete or succeed in their studies by virtue of serious and demonstrated exceptional circumstances may be eligible for a medical/compassionate withdrawal (see [Medical/Compassionate Withdrawals policy](#)). Please visit <https://camosun.ca/services/forms#medical> to learn more about the process involved in a medical/compassionate withdrawal.

Sexual Violence

Camosun is committed to creating a campus culture of safety, respect, and consent. Camosun's Office of Student Support is responsible for offering support to students impacted by sexual violence. Regardless of when or where the sexual violence occurred, students can access support at Camosun. The Office of Student Support will make sure students have a safe and private place to talk and will help them understand what supports are available and their options for next steps. The Office of Student Support respects a student's right to choose what is right for them. For more information see Camosun's Sexualized Violence Policy: <https://camosun.ca/sites/default/files/2021-05/e-2.9.pdf> and camosun.ca/services/sexual-violence-support-and-education.

To contact the Office of Student Support: oss@camosun.ca or by phone: 250-370-3046 or 250-370-3841

Student Misconduct (Non-Academic)

Camosun College is committed to building the academic competency of all students, seeks to empower students to become agents of their own learning, and promotes academic belonging for everyone. Camosun also expects that all students to conduct themselves in a manner that contributes to a positive, supportive, and safe learning environment. Please review Camosun College's Student Misconduct Policy at <https://camosun.ca/sites/default/files/2021-05/e-2.5.pdf> to understand the College's expectations of academic integrity and student behavioural conduct.

Looking for other policies?

The full suite of College policies and directives can be found here: <https://camosun.ca/about/camosun-college-policies-and-directives>

Changes to this Syllabus: Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.

