

# COURSE SYLLABUS



COURSE TITLE: BIOL-202: Microbiology 1

CLASS SECTION: 001A/B

TERM: Fall 2023

COURSE CREDITS: 3

DELIVERY METHOD(S): Lecture, Lab

Camosun College campuses are located on the traditional territories of the Ləkʷəŋən and W̱SÁNEĆ peoples. We acknowledge their welcome and graciousness to the students who seek knowledge here.

Learn more about Camosun's [Territorial Acknowledgement](#).

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## INSTRUCTOR DETAILS

NAME: Ryan Suleman MSc, RMCCM

EMAIL: [suleman@camosun.ca](mailto:suleman@camosun.ca)

OFFICE: F 250D

HOURS: Tuesday 2:30pm-3:30pm & 5:30pm -6:20pm

Friday 9:00-10:00am (Virtual Office Hours) & 10:00-11:00am (In-person)

*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.*

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## 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):

Not Applicable

### EXCLUSION(S):

Not Applicable

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## COURSE LEARNING OUTCOMES / OBJECTIVES

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

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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

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Prescott's Microbiology, 12<sup>th</sup> 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

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

**Lectures:** 001AB Tuesday 1:00-2:20pm F212 & Friday 11:00-12:20pm F268

**Labs:** 001A Thursday 1:30pm-4:20pm F222  
001B Thursday 9:30am-12:20pm F222

DATE RANGE	COURSE CONTENT	Laboratory
(Week 1) September 5 <sup>th</sup> -8 <sup>th</sup>	Introduction	Intro to RG2/Hand Washing
(Week 2) September 11 <sup>th</sup> - 15 <sup>th</sup>	Unit 1- Cell Structure & Function Part 1	Culture Techniques/Colony Morphology

DATE RANGE	COURSE CONTENT	Laboratory
(Week 3) September 18- 22 <sup>nd</sup>	Unit 1- Cell Structure & Function Part 2	Bacterial Staining Techniques
(Week 4) September 25 <sup>th</sup> -29 <sup>th</sup>	Unit 2- Bacterial Growth and Reproduction Part 1	Bacterial Culture Media- MAC/MSA
(Week 5) October 2 <sup>nd</sup> – October 6 <sup>th</sup>	Unit 2- Bacterial Growth and Reproduction Part 2	Environmental Growth Influences
(Week 6) October 9 <sup>th</sup> – October 13 <sup>th</sup>	Unit 3- Control of Microbial Growth Part 1 (Midterm 1)	Virtual Lab (No in Person Lab)
(Week 7) October 16 <sup>th</sup> - October 20 <sup>th</sup>	Unit 3- Control of Microbial Growth Part 2	Bacterial Enumeration
(Week 8) October 23 <sup>rd</sup> - October 27 <sup>th</sup>	Unit 4- Microbial Metabolism & ATP	Control of Microbial Growth-Part 1
(Week 9) October 30 <sup>th</sup> -November 3 <sup>rd</sup>	Unit 4- Microbial Metabolism & ATP	Control of Microbial Growth- Part 2
(Week 10) November 6 <sup>th</sup> - November 10 <sup>th</sup>	Unit 5-Archaea (Midterm 2)	Generation Time and Nutrition
(Week 11) November 13 <sup>th</sup> -November 17 <sup>th</sup>	Unit 6- Microbial Infectious Disease	Biochemical Analysis
(Week 12) November 20 <sup>th</sup> - November 24 <sup>th</sup>	Unit 7-Introduction to Animal Viruses	Biochemical Analysis- Part 2
(Week 13) November 27 <sup>th</sup> - December 1 <sup>st</sup>	Unit 7- Introduction to Animal Viruses- Part 2 Final Project	Biochemical Analysis- Part 3
(Week 14) December 4 <sup>th</sup> - December 8 <sup>th</sup>	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](http://camosun.ca/services/accessible-learning/exams.html). <http://camosun.ca/services/accessible-learning/exams.html>

## EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
Midterm 1 (Date: October 10 <sup>th</sup> )	15
Midterm 2 (Date: November 7 <sup>th</sup> )	20
Midterm 3 (Date: TBA)	25
Lab Exam (Date: December 7 <sup>th</sup> )	15
Assigned Readings (Weekly Connect Readings)	10
Pre-Lab Assignments (Completed on D2L)	5
Final Project Presentation (November 28 <sup>th</sup> )	5
In-class participation & Assignments	5

DESCRIPTION	WEIGHTING
	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](http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf) policy for more information.  
<http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf>

## COURSE GUIDELINES & EXPECTATIONS

### **GUIDELINES FOR LAB ATTENDANCE IN BIOLOGY AT CAMOSUN**

**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 gradebook 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.
- Lab manuals for each week will be provided on D2L, it is the student responsibility to print these off *in advance* of the lab for completion during the lab period.

#### **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.
- 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 with 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.
- Please note that if you are suffering from a serious medical illness that prevents you from participating in this course, Camosun College has a Compassionate Medical Withdrawal Policy (<https://camosun.ca/services/forms#medical>)

## Lecture Attendance

Attendance will be required for the first two weeks of classes; attendance will NOT be required for lectures after this period (EXAMS are the only exception to this). However, attending and participating in lectures is strongly recommended to ensure success in this course. If a class is missed, the student is responsible for arranging to obtain information such as notes, handouts, assignments, and announcements.

## Written Assignments

All assignments must be submitted according to the instructor's criteria. A professional format is expected, i.e. a neat, legible, clean copy. "Rough" drafts risk rejection and a subsequent late penalty or reduced marks. If the assignment is more than one page, separate pages must be stapled.

Unless otherwise stated, all assignments are due at the beginning of the lab/class on the due date. As described on the previous page, late assignments will be accepted with a penalty of 10% per day, including weekends. Late assignments will not be accepted once marked assignments have been returned to the class.

## Plagiarism

You are encouraged to discuss assignments with your classmates, however, individual assignments must be your own individual work – beware of plagiarism.

Plagiarizing is appropriating the work or parts or passages of another's writing (including the ideas or language) and passing them off as the product of one's own mind or manual skill (see <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.1.pdf>).

Except where work is assigned to a group, all written work must be done individually. Plagiarism is a serious offence and is considered to be academic misconduct, and will not be tolerated. A student caught plagiarizing will forfeit all credit for the assignment and a note will be sent to the Dean regarding the student's behaviour.

## Missed Exams

All exams must be written at the scheduled times. However, it is understood that emergency circumstances occur (e.g. illness or emergency in the immediate family); for such circumstances accommodation may be offered at the discretion of the instructor, provided the student:

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- (a) notifies the instructor in advance of the exam (not after), and
  - (b) provides acceptable documentation of the circumstance where possible (i.e. medical documentation).
- In the event of emergency circumstances, it is at the instructor's discretion whether to administer an oral or written make-up exam.

\* HOLIDAYS, SCHEDULED FLIGHTS, AND WORK ARE NOT CONSIDERED TO BE EMERGENCIES \*

Be sure not to make travel or work plans for the end of semester until the final exam schedule is finalized and posted. Please ask any family members who might make travel plans on your behalf to consult you before booking tickets

## STUDENT RESPONSIBILITY

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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

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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 <http://camosun.ca/students/>.

Academic Advising	<a href="http://camosun.ca/advising">http://camosun.ca/advising</a>
Accessible Learning	<a href="http://camosun.ca/accessible-learning">http://camosun.ca/accessible-learning</a>
Counselling	<a href="http://camosun.ca/counselling">http://camosun.ca/counselling</a>
Career Services	<a href="http://camosun.ca/coop">http://camosun.ca/coop</a>
Financial Aid and Awards	<a href="http://camosun.ca/financialaid">http://camosun.ca/financialaid</a>
Help Centres (Math/English/Science)	<a href="http://camosun.ca/help-centres">http://camosun.ca/help-centres</a>
Indigenous Student Support	<a href="http://camosun.ca/indigenous">http://camosun.ca/indigenous</a>
International Student Support	<a href="http://camosun.ca/international/">http://camosun.ca/international/</a>
Learning Skills	<a href="http://camosun.ca/learningskills">http://camosun.ca/learningskills</a>
Library	<a href="http://camosun.ca/services/library/">http://camosun.ca/services/library/</a>
Office of Student Support	<a href="http://camosun.ca/oss">http://camosun.ca/oss</a>
Ombudsperson	<a href="http://camosun.ca/ombuds">http://camosun.ca/ombuds</a>
Registration	<a href="http://camosun.ca/registration">http://camosun.ca/registration</a>
Technology Support	<a href="http://camosun.ca/its">http://camosun.ca/its</a>
Writing Centre	<a href="http://camosun.ca/writing-centre">http://camosun.ca/writing-centre</a>

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

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### Academic Accommodations for Students with Disabilities

The College is committed to providing appropriate and reasonable academic accommodations to students with disabilities (i.e. physical, depression, learning, etc). If you have a disability, the [Centre for Accessible Learning](#) (CAL) can help you document your needs, and where disability-related barriers to access in your courses exist, create an accommodation plan. By making a plan through CAL, you can ensure you have the appropriate academic accommodations you need without disclosing your diagnosis or condition to course instructors. Please visit the CAL website for contacts and to learn how to get started:

<http://camosun.ca/services/accessible-learning/>

### Academic Integrity

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.13.pdf> for policy regarding academic expectations and details for addressing and resolving matters of academic misconduct.

### Academic Progress

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/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 <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.2.pdf> for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit <http://camosun.ca/learn/fees/#deadlines>.

### Grading Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf> for further details about grading.

### Grade Review and Appeals

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf> for policy relating to requests for review and appeal of grades.

### Mandatory Attendance for First Class Meeting of Each Course

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable reason in advance, you will be removed from the course and the space offered to the next waitlisted student. For more information, please see the "Attendance" section under "Registration Policies and Procedures"

(<http://camosun.ca/learn/calendar/current/procedures.html>) and the Grading Policy at

<http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf>.

### 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. Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.8.pdf> to learn more about the process involved in a medical/compassionate withdrawal.

### Sexual Violence and Misconduct

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 or misconduct 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 and Misconduct Policy: <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.9.pdf> and [camosun.ca/sexual-violence](http://camosun.ca/sexual-violence). To contact the Office of Student Support: [oss@camosun.ca](mailto:oss@camosun.ca) or by phone: 250-370-3046 or 250-3703841

### 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 <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf> to understand the College's expectations of academic integrity and student behavioural conduct.

**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.