

# COURSE SYLLABUS



COURSE TITLE: BIOL-202: Microbiology 1

CLASS SECTION: 01A/B

TERM: Fall 2022

COURSE CREDITS: 4

DELIVERY METHOD(S): Lectures, lab

Camosun College campuses are located on the traditional territories of the Lək̓ʷəŋən 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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For COVID-19 information please visit <https://legacy.camosun.ca/covid19/index.html>

*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 explanation in advance, you will be removed from the course and the space offered to the next waitlisted student.*

## INSTRUCTOR DETAILS

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NAME: Dominic Bergeron, PhD

EMAIL: [BergeronD@Camosun.ca](mailto:BergeronD@Camosun.ca)

OFFICE: F 248 D

HOURS: Monday: 10:30 – 12:30

Wednesday: 10:30 – 12:30

Also by appointment

*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

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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

## COURSE LEARNING OUTCOMES / OBJECTIVES

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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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### *Required:*

- 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 will provide you with a lab coat in exchange for a voucher purchased from Camosun bookstore.

## 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.

DATE RANGE	CONTENT	LABORATORY ACTIVITY
<b>sept 6 - sept 9</b>	Introduction	Intro to RG2 / Hand Washing
<b>sept 12 - sept 16</b>	Unit 1 - Prokaryotic Cell Structure and Function	Culture Techniques / Colony Morphology
<b>sept 19 - sept 23</b>	Unit 1 – pt2	Bacterial Staining Tech

DATE RANGE	CONTENT	LABORATORY ACTIVITY
<i>sept 26 – sept 29</i>	Unit 1 – pt3	Bacterial Culture Media - MAC/MSA
<i>oct 3 - oct 7</i>	Unit 2 - Bacterial Growth and Reproduction ( <b>Midterm 1</b> )	Environmental Growth Influences
<i>oct 11 - oct 14</i>	Unit 2 – pt2	<b>NO LAB</b>
<i>oct 17 - oct 21</i>	Unit 3 - Control of Microbial Growth	Bacterial Enumeration
<i>oct 24 - oct 28</i>	Unit 3 – pt2	Control of Microbial Growth
<i>oct 31 - nov 4</i>	Unit 3 – pt3	Control of Microbial Growth - pt2
<i>nov 7 - nov 10</i>	Unit 4 - Microbial Metabolism & ATP Generation ( <b>Midterm 2</b> )	Generation Time and Nutrition
<i>nov 14 - nov 18</i>	Unit 4 – pt2	Biochemical Analysis
<i>nov 21 - nov 25</i>	Unit 5 - Archaea	Biochemical Analysis – pt2
<i>nov 28 - dec 2</i>	Unit 6 - Introduction to Animal Viruses	Biochemical Analysis – pt3
<i>dec 5 - dec 9</i>	Unit 6 – pt2	<b>NO LAB – LAB EXAM</b>

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 notice 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	DATE	WEIGHTING
Midterm 1 (Unit 1)	October 5	15
Midterm 2 (Unit 2 – 4 partial)	November 9	20
Lab exam	December 6	15
Assigned readings	Weekly	10
Pre-Labs	Weekly	10
Final exam	TBD – as scheduled by Camosun	30
	<b>TOTAL</b>	<b>100%</b>

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>

### Lecture and Lab attendance:

To get the most out of this course, students are expected to attend all classes and labs and be on time. It is your responsibility to acquire all information given during a class missed, including notes, handouts, changed exam dates etc.

### Due Dates and Late Assignments

The due dates for the Connect assignments are established in accordance with the course and term duration. The purpose of the due dates is to help both you and I to get the assignments done so that they are helpful in preparation for lectures and lab exercises. Each Connect assignment and Virtual Lab allows ample time to be completed and must be submitted within the allowed time period, normally 7 days. Please check the dates on Connect.

### Exam Procedures

All exams must be written at the scheduled times with the exception of students requiring an accommodation by CAL. It is understood that emergency circumstances do occur (e.g. severe illness or family emergency); for such circumstances accommodation may be offered at the discretion of the instructor, provided the student:

- a) notifies the instructor in advance of the exam (not after), and;
- b) provides documented evidence of the circumstance (e.g. medical certificate).

If an exam is missed with an excused absence, it is up to the instructor's discretion as to how the mark will be made up. In most cases, an oral exam will be scheduled for the student as soon as possible.

### **IMPORTANT:**

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

Please note: the use of cell phones during a test or quiz is not allowed and may result in a zero for that assessment.

### Study Habits

Good and regular study habits are essential to do well in this course. You should plan on a weekly minimum of 6 hours outside of scheduled class time for the completion of readings, Virtual Lab assignments and for general studying. Joining a study group can help make this more achievable. Lecture presentations will be uploaded to the course website. These should be used as a study guide, **BUT NOT AS YOUR SOLE SOURCE OF INFORMATION**

Please take advantage of office hours if you need extra clarification and help.

## 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.

### 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.