

# COURSE SYLLABUS



COURSE TITLE: BIOL-202: Microbiology 1

CLASS SECTION: 001 A/B

TERM: Fall 2021

COURSE CREDITS: 4

DELIVERY METHOD(S): In person

Camosun College campuses are located on the traditional territories of the Lək'wəḡən 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://camosun.ca/about/covid-19-updates>

*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: **ONLINE EXCLUSIVELY**

Tuesdays: Noon – 2:00; Fridays: 2-30 – 4:30 and 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

## 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, 11<sup>th</sup> ed. (2020). McGraw Hill Higher Education. This resource is available at Camosun's bookstore. [https://www.camosuncollegebookstore.ca/buy\\_textbooks.asp](https://www.camosuncollegebookstore.ca/buy_textbooks.asp)

All students taking part in labs held in F222 will be required to rent a lab coat for the term at a cost of \$6. This lab coat will remain in F222 **for the duration of the term** (can be replaced as needed for a fresh lab coat). The bookstore has chits available for students to purchase for \$6. These chits are exchanged in the lab for a lab coat.

#### 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
<i>sept 7 - sept 10</i>	Introduction	Intro to RG2 / Hand Washing
<i>sept 13 - sept 17</i>	Unit 1 - Prokaryotic Cell Structure and Function	Culture Techniques / Colony Morphology
<i>sept 20 - sept 24</i>	Unit 1 – pt2	Bacterial Staining Tech
<i>sept 27 - oct 1</i>	Unit 1 – pt3	<b>NO LAB</b>
<i>oct 4 - oct 8</i>	Unit 2 - Bacterial Growth and Reproduction	Bacterial Culture Media - MAC/MSA
<i>oct 11 - oct 15</i>	Unit 2 – pt2	Environmental Growth Influences
<i>oct 18 - oct 22</i>	Unit 3 - Control of Microbial Growth	Bacterial Enumeration

DATE RANGE	CONTENT	LABORATORY ACTIVITY
<i>oct 25 - oct 29</i>	Unit 3 – pt2	Control of Microbial Growth
<i>nov 1 - nov 5</i>	Unit 3 – pt3	Control of Microbial Growth - pt2
<i>nov 8 - nov 12</i>	Unit 4 - Microbial Metabolism & ATP Generation	<b>NO LAB</b>
<i>nov 15 - nov 19</i>	Unit 4 – pt2	Generation Time and Nutrition
<i>nov 22 - nov 26</i>	Unit 5 - Archaea	Biochemical Analysis
<i>nov 29 - dec 3</i>	Unit 6 - Introduction to Animal Viruses	Biochemical Analysis – pt2
<i>dec 6 - dec 10</i>	Unit 6 – pt2	Biochemical Analysis – pt3

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

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DESCRIPTION	DATE	WEIGHTING
Midterm 1 (Unit 1)	October 8	15
Midterm 2 (Unit 2 – 4 partial)	November 12	20
Lab exam	December 11	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 Attendance

Aside from the first two weeks of classes, attendance will NOT be required for lectures (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.

### Laboratory Attendance

Laboratory attendance for this course is **mandatory**. It is expected that students will read and prepare for each lab BEFORE arrival. Lateness in arriving, failure to attend the lab, or leaving the lab before its scheduled finish time will result in forfeiting credit for that lab, including any written assignments. Exceptions can be made **at the instructor's discretion** in legitimate cases of emergency (e.g. significant illness); in such cases the instructor must receive **advance notification** to grant approval for any accommodation.

### 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 (see below)**

*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:

- (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).

IMPORTANT: 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.

## Cheating

A student caught cheating on an exam will forfeit all credit for that exam and perhaps for the course. Cheating is a serious offence and is considered to be academic misconduct. Cheating includes but is not limited to:

- (a) using unauthorized materials or resources in a quiz/exam, and
- (b) providing information to another person regarding exam content.

The consequences for cheating and plagiarism are outlined by Camosun College policies (see <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf>) and penalties may be severe.

## Student Safety

Consider the following laboratory safety practices. These are required to participate in all laboratory activities. Students must sign a safety contract in the first lab and follow all safety rules and procedures.

Lab footwear	<ul style="list-style-type: none"><li>For safety reasons <b>WorkSafeBC</b> mandates that students are <b>required</b> to wear closed shoes in all lab times. Flip flops, sandals, or shoes with holes are NOT acceptable.</li></ul>
Lab coat	<ul style="list-style-type: none"><li>Due to the handling of chemicals in this lab, lab coats are <b>required</b> to participate in each lab for this course.</li></ul>
Eating & drinking	<ul style="list-style-type: none"><li>Absolutely <b>NOTHING</b> may be ingested while in the lab. Chewing gum and applying makeup or lip balm are similarly prohibited.</li><li>If something must be consumed, then it may be taken out of the lab.</li></ul>
Hair	<ul style="list-style-type: none"><li>Long hair must be tied back securely.</li></ul>
Hand washing	<ul style="list-style-type: none"><li>Hands should be thoroughly washed <b>BEFORE</b> leaving the lab.</li></ul>

## Study Habits

Good (and regular!!) study habits are required to do well in this course. You should plan on a minimum of 6 hours outside of scheduled class time for the completion of assignments and for general studying. Joining a study group can help make this more fun.

Lecture notes will be posted on D2L in PDF form. These should be used as a study guide, not as your sole source of information. You will need to write down additional key words for examples and explanations given during lecture and read the chapters assigned to each week. It is also recommended practice to transcribe these notes into a study-friendly format after each lecture, incorporating additional information from your textbook. Study these notes before the next class to prepare yourself for new material, which will often build on previously covered material.

**Please take advantage of office hours if you need assistance with course material or assignments.**

## 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.