

# COURSE SYLLABUS



COURSE TITLE: BIOL-203-Microbiology 2

CLASS SECTION: 001B

TERM: 2025W

COURSE CREDITS: 3

DELIVERY METHOD(S): In person lectures and labs

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.

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## INSTRUCTOR DETAILS

NAME: Dr. Farnoosh Farhoomand

EMAIL: Farhoomandf@camosun.ca

OFFICE: Fisher 246

HOURS: Tuesdays: 1-2 pm, Thursdays: 12:30-1:30 pm

*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

This course is a continuation of BIOL 202. Topics include: molecular biology, microbial genetics, recombinant DNA technology, genomics, innate and adaptive immunity, pathogenesis of infectious diseases and epidemiology.

### PREREQUISITE(S):

All of:

- C in BIOL 202

CO-REQUISITE(S): Not applicable

EQUIVALENCIES: Not applicable

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## COURSE LEARNING OUTCOMES / OBJECTIVES

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

Describe the process of prokaryotic DNA replication. Explain the mechanisms of gene expression and regulation. Describe the principles of mutation: classification, induction, selection and repair. Compare and contrast the mechanisms of bacterial DNA acquisition and recombination.

Demonstrate a detailed knowledge of current techniques and applications of recombinant DNA technology. Outline the steps involved in the preparation of recombinant DNA and the expression and detection of cloned DNA. Describe the uses of bacterial and viral cloning vectors.

Explain the principles of microbial genomics. Outline the steps involved in whole genome sequencing. Discuss the principles of bioinformatics and functional genomics.

Describe the relationship between normal microbiota and the human host. Discuss the role of physical and chemical barriers in non-specific host resistance. Explain the activation and consequences of inflammation, complement, phagocytosis and fever responses.

Discuss the role of adaptive immunity in host resistance. Identify the function of cytokines, interleukins and interferons in the immune response. Describe the role of each of the T cell subsets in cell-mediated immunity. Describe the role of B cells in humoral immunity. Explain the functions of the five classes of antibody and describe their structural and chemical characteristics.

Classify host parasite relationships. Explain the role of invasiveness, adherence factors and toxigenicity in the pathogenesis of bacterial diseases. Discuss the pathogenic properties of viruses. Discuss the principles of epidemiology of infectious diseases.

Conduct experiments to demonstrate techniques in clinical microbiology, recombinant DNA technology, bacterial genetics, and food and water analysis. 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).

Here is the unique URL that you must use to register into your Connect section:

<https://connect.mheducation.com/class/winter-2025-biol-203>

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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**Lectures:** 001B Tuesday 9:30-10:50 AM, Ewing 201  
& Thursday 4:00 -5:20 PM, F336

**Labs:** 001B Wednesday 1:30pm-4:20pm F222

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

WEEK (DATE RANGE)	Lecture Topic	Lab Topic
Jan 6 <sup>th</sup> -10 <sup>th</sup>	Introduction & Microbial Pathogenicity	Lab Safety (online)
Jan 13 <sup>th</sup> -17 <sup>th</sup>	Microbial Pathogenicity	Lab 1: Enterobacteriaceae Part 1
Jan 20 <sup>th</sup> -24 <sup>th</sup>	DNA Replication	Lab 2: Gram Positive Bacteria Part 1 Lab 1: Enterobacteriaceae Part 2
Jan 27 <sup>th</sup> -31 <sup>st</sup>	DNA Replication & Gene Expression	Lab 3: Food + Milk Analysis Part 1 Lab 2: Gram Positive Bacteria Part 2
Feb 3 <sup>rd</sup> -7 <sup>th</sup>	Gene Expression & Molecular Microbiology	Lab 3: Food + Milk Analysis Part 2
Feb 10 <sup>th</sup> -14 <sup>th</sup>	Molecular Microbiology	Lab 4 A: Virtual Lab
Feb 17 <sup>th</sup> -21 <sup>st</sup>	<b>READING BREAK- NO CLASS</b>	<b>READING WEEK</b>
Feb 24 <sup>th</sup> -28 <sup>th</sup>	Immunology: Innate Defenses <b>Lecture Exam 1</b>	Lab 4B: Antibody Titering
Mar 3 <sup>rd</sup> -7 <sup>th</sup>	Immunology: Acquired Immunity Pt1	Lab 5: Unknown Bacteria Part 1
Mar 10 <sup>th</sup> -14 <sup>th</sup>	Immunology: Acquired Immunity Pt2	Lab 5: Unknown Bacteria Part 2 Lab 6: TBA
Mar 17 <sup>th</sup> -21 <sup>st</sup>	Epidemiology & Public Health	Lab 5: Unknown Bacteria Part 3 Lab 6: TBA
Mar 24 <sup>th</sup> -28 <sup>th</sup>	Epidemiology & Public Health	Lab 7: Water Coliforms Part 1
Mar 31 <sup>st</sup> -Apr 4 <sup>th</sup>	Microbiome	Lab 7: Water Coliforms Part 2
Apr 7 <sup>th</sup> -11 <sup>th</sup>	Final Exam Review & Teaching Project	Lab 7: Water Coliforms Part 3
Apr 14 <sup>th</sup> -18 <sup>th</sup>	<b>LECTURE FINAL EXAM</b> (Date and time scheduled by College Registrar)	<b>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](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

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DESCRIPTION	WEIGHTING
Connect Assignments (McGraw Hill Connect)	10%
Midterm (Feb 24 <sup>th</sup> -28 <sup>th</sup> )	20%
Teaching Project Presentation	10%
Teaching Project Paper	10%
Lab Reports (2 x 4%)	8%
Pre-Lab Flow Chart	4%
Final Laboratory Exam	8%
Final Exam	30%
<p>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 <a href="#">Grade Review and Appeals</a> policy for more information.</p> <p><a href="https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf">https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf</a></p>	<b>TOTAL</b> 100%

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## COURSE GUIDELINES & EXPECTATIONS

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### Attendance, Exams, and Submission of Assignments

It is expected that you attend the lectures and all the labs. If you do miss a lecture, it is your responsibility to find out what you missed that day and get caught up. Attendance in the lab is required for completion of the lab assignments.

Exams must be written at their scheduled time. This course will have one lecture midterm (scheduled and written during class time), one lab midterm exam and one final lab exam (scheduled and written during lab time), and one final exam (to be scheduled by the college registrar and written at the specified time during the final exam period). Please refer to the detailed course schedule above for the dates and times of these exams. In particular, please wait until after the final exam schedule has been posted before booking any travel arrangements for the end of term. Ensure that your travel is scheduled for after the completion of your final exam for this class. The final exam schedule will be posted on myCamosun mid-February.

\*\*If you are unable to write a scheduled exam due to extreme, extenuating circumstances, you must contact your instructor as soon as possible, prior to the exam. Missed exams will be scheduled to be written as soon as possible after the missed exam.

All course assignments will have a specified due date. Be sure to submit all assignments on time to avoid deductions. A 10% deduction per day late will be applied to lab reports assignments that are submitted after the due date/time. Extenuating circumstances will be considered. If you are unable to submit an assignment on time, please contact your instructor as early as possible to discuss possible arrangements. Submitting assignments on time will help you to keep up with the course material and receive timely feedback that will help you with other course assignments and exams.

Some course assignments will be group work and some course assignments will be individual work. When submitting your own, individual assignment, be sure that it is your work and yours alone. This applies even if you are working with a study group! I do encourage you to study and work with other students, but the work that you submit must still be your own.

### **Group Work**

During the lab component of the course, you will work in small groups to perform demonstrations and experiments. Aim for equal (not necessarily identical) participation of all group members. Discuss individual responsibilities within the group and include the instructor in these discussions as needed. Lab assignments will usually be submitted as individual work but may sometimes be submitted as group work. Details will be described each week in lab.

## SCHOOL OR DEPARTMENTAL INFORMATION

### 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 [camosun.ca/services](https://camosun.ca/services).

Support Service	Website
Academic Advising	<a href="https://camosun.ca/services/academic-supports/academic-advising">camosun.ca/services/academic-supports/academic-advising</a>
Accessible Learning	<a href="https://camosun.ca/services/academic-supports/accessible-learning">camosun.ca/services/academic-supports/accessible-learning</a>
Counselling	<a href="https://camosun.ca/services/health-and-wellness/counselling-centre">camosun.ca/services/health-and-wellness/counselling-centre</a>
Career Services	<a href="https://camosun.ca/services/co-operative-education-and-career-services">camosun.ca/services/co-operative-education-and-career-services</a>
Financial Aid and Awards	<a href="https://camosun.ca/registration-records/financial-aid-awards">camosun.ca/registration-records/financial-aid-awards</a>
Help Centres (Math/English/Science)	<a href="https://camosun.ca/services/academic-supports/help-centres">camosun.ca/services/academic-supports/help-centres</a>
Indigenous Student Support	<a href="https://camosun.ca/programs-courses/iecc/indigenous-student-services">camosun.ca/programs-courses/iecc/indigenous-student-services</a>
International Student Support	<a href="https://camosun.ca/international">camosun.ca/international</a>
Learning Skills	<a href="https://camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills">camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills</a>
Library	<a href="https://camosun.ca/services/library">camosun.ca/services/library</a>
Office of Student Support	<a href="https://camosun.ca/services/office-student-support">camosun.ca/services/office-student-support</a>
Ombudsperson	<a href="https://camosun.ca/services/ombudsperson">camosun.ca/services/ombudsperson</a>
Registration	<a href="https://camosun.ca/registration-records/registration">camosun.ca/registration-records/registration</a>
Technology Support	<a href="https://camosun.ca/services/its">camosun.ca/services/its</a>
Writing Centre	<a href="https://camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills">camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills</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 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](https://camosun.ca/services/sexual-violence-support-and-education).

To contact the Office of Student Support: [oss@camosun.ca](mailto: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

