



**CAMOSUN COLLEGE**  
**School of Arts & Science**  
**Department of Biology**

**BIOL-203-D01AB**  
**Microbiology 2**  
**Winter 2021**

**COURSE OUTLINE**

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The course description is online @ <http://camosun.ca/learn/calendar/current/web/biol.html>

Ω Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.

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**1. Instructor Information**

<b>Instructor</b>	Dominic Bergeron, PhD
<b>Office hours</b>	Mondays 14:30 – 16:30; Thursdays 10:30 – 12:30. If these hours do not work for you please book an appointment.
<b>Location</b>	Online
<b>Phone</b>	N/A
<b>E-mail</b>	<a href="mailto:Bergerond@camosun.ca">Bergerond@camosun.ca</a>
<b>Website</b>	<a href="https://www.youtube.com/user/MachineBiological">https://www.youtube.com/user/MachineBiological</a>

**2. Intended Learning Outcomes**

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

1. 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.
2. 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.
3. Explain the principles of microbial genomics. Outline the steps involved in whole genome sequencing. Discuss the principles of bioinformatics and functional genomics.
4. 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.
5. 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.
6. 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.
7. 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.

### 3. Required Materials

IF YOU ALREADY BOUGHT THE BOOK FOR BIOL 202 (Prescott's Microbiology 11<sup>th</sup>), YOU DO NOT NEED TO PURCHASE THE RESOURCE AGAIN HOWEVER YOU STILL NEED TO REGISTER TO BIOL 203 (CONNECT)

If you don't have the resource already this is the simplest way:

- 1) Purchase an access code from Camosun Bookstore by following this link: [https://www.camosuncollegebookstore.ca/buy\\_access\\_codes.asp](https://www.camosuncollegebookstore.ca/buy_access_codes.asp) (Tick the BIOL 203 box)

**\*\*THE FOLLOWING APPLIES WHETHER YOU HAVE ALREADY BOUGHT THE BOOK OR NOT ? IT IS NECESSARY TO GO THROUGH THIS STEP IN ORDER TO GAIN ACCESS TO BIOL 203 (CONNECT)**

- 2) Once you have the access code (Connect code) go to the following website: <https://connect.mheducation.com/class/d-bergeron-biol-203-january-2021> (course code is BIOL 203)

### 4. Course Content and Schedule

Note: The following is a **tentative** schedule of course topics and events. Course topics may be added or deleted as time permits. Any changes to this schedule will be announced in class and posted on D2L.

Week	Unit	Theory	Lab
1		Introduction	<b>No lab</b>
2	Unit 1 – Defensive systems	Innate Immunity	Virtual lab Blood typing Elisa concept (theory)
3		Adaptive Immunity	Elisa simulation (data analysis)
4		Microbiome	Elisa Simulation (data analysis)
5		TP#1	Work on Elisa Lab Report
6		Reading Break	<b>No lab</b>
7	Unit 2 – Infection and illness	Bacterial pathogenesis	Bact identif #1
8		Bacterial pathogenesis	Bact identif #2
9		TP#2	Bact identif #3
10	Unit 3 – How disease spreads	Epidemiology	Epidemiology sim
11		Epidemiology	Epidemiology sim
12		TP#3	<b>No lab</b>
13	Unit 4 – Molecular microbiology	Bacterial genetics (recorded lecture) (Easter Monday)	Transformation / PCR
14		Bacterial genetics	The concept of the operon

### 5. Basis of Student Assessment (Weighting)

Readings and Connect virtual labs:	20%
Teaching projects (TP):	20%
Unit quizzes:	20%
Lab reports (ELISA and bact pathogenesis):	10%
Final exam:	30%

### 6. Grading System

Standard Grading System (GPA)

Competency Based Grading System

## 7. Recommended Materials to Assist Students to Succeed Throughout the Course

Please make sure to visit D2L on a very regular basis to stay on top of content and to get latest information about this class.

Course expectations – Or how to be successful in this class

- i. Attend ALL virtual Collaborate sessions (Lectures / Tutorials and Labs – If you can't make it, make sure to watch the recorded session
- ii. I always provide more than enough time for each required evaluation. You are required to write every exam / quiz / assignment within these boundaries. Accommodations will be provided if necessary HOWEVER these accommodations have to be discussed AHEAD of time, not after it's too late. In addition, students are expected to submit their required assignments on time via D2L or *McGraw Hill Connect* depending on the assignment. Please note that late submissions will receive a 10% penalty for every 24 hours they are past due.

Make sure to review the following document on academic honesty (and the consequences of academic dishonesty): <http://camosun.ca/learn/school/arts-science/images/Arts%20and%20Science%20Academic%20Honesty%20Guidelines.pdf>

## 8. College Supports, Services and Policies

### Immediate, Urgent, or Emergency Support

If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ <http://camosun.ca/about/mental-health/emergency.html> or <http://camosun.ca/services/sexual-violence/get-support.html#urgent>

### College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at <http://camosun.ca/>

### College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at <http://camosun.ca/about/policies/>. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence, Student Ancillary Fees, Academic Integrity, Grade Review & Appeals, Student Misconduct and Academic Accommodations for Students with Disabilities and Student Penalties and Fines.

## A. GRADING SYSTEMS <http://camosun.ca/about/policies/index.html>

The following two grading systems are used at Camosun College:

### 1. Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

### 2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

## B. Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at <http://camosun.ca/about/policies/index.html> for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress:</i> A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	<i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.