



CAMOSUN COLLEGE
School of Arts & Science
Department of Biology

BIOL-202-D01A/B
Microbiology 1
FALL 2020

COURSE OUTLINE

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.

1. Instructor Information

(a) Instructor	Dominic Bergeron, PhD
(b) Office hours	Fridays 10:00 – 12:00 , 1:30 – 3:30 and by appointment
(c) Location	Online
(d) Phone	Alternative: _____
(e) E-mail	Bergerond@camosun.ca
(f) Website	https://www.youtube.com/user/MachineBiological

2. Intended Learning Outcomes

Upon completion of this course the 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.

3. Required Materials

Prescott's Principles of Microbiology (2nd ed) – McGrawHill CONNECT (Online version required)
Get access code at: <https://connect.mheducation.com/class/fall-2020-biol-202>
(Course code BIOL 202)

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.

	Topic	Lab (simulations/tutorials)
1 Sept 8 - 11	Introduction	Lab Intro
2 Sept 14 - 18	Unit 1: Prokaryotic Cell Structure and Function	Hand washing / Safety
3 Sept 21 - 25		Winogradsky column
4 Sept 28 – Oct 2		Microscopy
5 Oct 5 - 9	Midterm 1	Staining tech
6 Oct 12 - 16	Unit 2: Bacterial Growth and Reproduction	Culture Techniques
7 Oct 19 - 23		Growth conditions
8 Oct 26 - 30	Unit 3: Control of Bacterial Growth	Antibiotics
9 Nov 2 - 6	Midterm 2	TBA
10 Nov – 9 – 13	Unit 4: Microbial Metabolism	Fermentations
11 Nov – 16 - 20		Biochemical analysis
12 Nov 23 - 27	Unit 5: Introduction to Viruses	Methods in Virology
13 Nov 30 – Dec 4		Winogradsky wrap up
14 Dec 7 - 11		LAB EXAM
Exam week	Final exam as scheduled by Camosun college	

5. Basis of Student Assessment (Weighting)

Midterm 1:	15%
Midterm 2:	15%
Lab exam:	15%
Final exam:	30%
Assignments:	15% (McGrawHill Connect)
Lab quizzes	10%

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 have to write every exam / quiz /assignment within these boundaries. Accommodations will be provided if necessary. 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 and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, 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.