



CAMOSUN COLLEGE
School of Arts & Science
Department of Environmental Technology

ENVR-206B-D01A/B
Environmental Biotechnology
Fall 2020

COURSE OUTLINE

The course description is online @ <http://camosun.ca/learn/calendar/current/web/envr.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	Ian Browning	_____
(b) Office hours	See schedule on D2L	_____
(c) Location	P326	_____
(d) Phone	250-370-3000 x 2165	Alternative: _____
(e) E-mail	browning@camosun.ca	_____
(f) Website	_____	_____

2. Intended Learning Outcomes

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

1. Culture and subculture plant explants under sterile conditions.
2. Use the tools of biotechnology, including DNA extraction techniques, restriction enzymes, agarose gel electrophoresis, PCR and protoplast fusion and discuss these molecular biology techniques.
3. Use Agrobacterium and tissue culture techniques to introduce a foreign gene into selected plants.
4. Explain the principles of bioremediation and phytoremediation.
5. Explain the principles of genetic engineering and biotechnological techniques and their application to agriculture and the environment.

3. Required Materials

- (a) Texts - none
- (b) Other - Lab manual and lecture notes are available on the course D2L site.

4. Course Content and Schedule

Lecture: online asynchronous.

Labs: online asynchronous.

The schedule, which follows, is an attempt to outline the weekly activities of the class. It is subject to change or modification as the need arises. **Note: ENVR206B is a 12-week course.**

Week	Section/Topic	Assessment
Week 1	DNA Basics 1_Introduction 2_DNA_Structure	n/a
Week 2	3_DNAReplication 4_Assignments DNA Function 1_DNAFunction	Assignment 1
Week 3	Biomimicry 1_Biomimicry	Quiz 1 (DNA Basics) Assignment 2
Week 4	EnvGenetics 1_ConservationGenetics	Assignment 1 due Quiz 2 (DNA Function)
Week 5	Bioremediation 1_Bioremediation	Assignment 3
Week 6	Tools 1. 1_RestrictionEnzymes 2_PCR	Assignment 2 due Quiz 3 (EnvGenetics)
Week 7	Biowaste/Bioenergy 1_BiowasteBioenergy	Assignment 4
Week 8	Assignments: research/reading 1_Spectrophotometry 2_eDNA	Assignment 3 due Quiz 4 (Tools 1)
Week 9	Tools 2. 1_TissueCulture 2_ProtoplastFusion 3_Agrobacterium	
Week 10	Tools 3. 1_CRISPR 2_IntroSyntheticBiology 3_Sequencing	Quiz 5 (Tools 2)
Week 11	Assignments: research/reading	
Week 12	Review/catchup	Quiz 6 (Tools 3) Assignment 4 due

5. Basis of Student Assessment (Weighting)

D2L Quiz's (x5)	60% (10% each)
Case Study Assignments (x4)	40% (10% each)

Notes: 1. Subject to change. See D2L gradebook for up-to-date weightings.

6. Grading System

Standard Grading System (GPA)

Competency Based Grading System

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

See course D2L site.

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.

