



## COURSE OUTLINE

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

- Please note: the College electronically stores this outline for five (5) years only.  
It is **strongly recommended** you keep a copy of this outline with your academic records.  
You will need this outline for any future application/s for transfer credit/s to other colleges/universities.

### 1. Instructor Information

Instructor: **Dominic Bergeron, PhD**  
Office Hours: **M, W: 2:30-4:20 ; F: 10:30-11:20**  
Location: Fisher 342 B  
Phone: 250-370-3465  
Email: [BergeronD@camosun.ca](mailto:BergeronD@camosun.ca)  
D2L Website: <http://online.camosun.ca>

### 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

- (a) Textbook: Prescott's Microbiology, 8<sup>th</sup> Edition (Available at the Bookstore)
- (b) Other: Biol 202-203 Lab Manual, Camosun College

#### 4. Course Content and Schedule

***IMPORTANT NOTE:** The following schedule is an attempt to outline the weekly activities. It is subject to change or modification as the need arises.*

Week	Date	Lecture Topic	Text Chapter	Lab Exercise
1	Jan 9 - 13	Microbial Interactions and Pathogenicity of Microorganisms	30 & 31	Media Prep
2	Jan 16 – 20 <b>Jan 19</b>	Pathogenicity of Microorganisms <b>Group work eval #1</b>	31	Lab 11 Enterobacteria
3	Jan 23 – 27	Pathogenicity of Microorganisms Epidemiology of Infectious Diseases	31, 36	Lab 12 Cocci
4	Jan 30 – Feb 3 <b>Feb 2</b>	Epidemiology of Infectious Diseases <b>Group work eval #2</b>	36	Lab 13 Unknown Bacteria
5	Feb 6 – 10	Immunology: Non-Specific Innate Immunity	32	Lab 13 Unknown Bacteria
6	Feb 13 – 17 <b>Feb 16</b>	Immunology: Non-Specific Innate Immunity <b>Group work eval #3</b>	32	Lab 17 A&B Coliform Detection
7	Feb 20 – 24	Immunology: Specific Adaptive Immunity	33	Lab 17 C&D Coliform Detection
8	Feb 27 – March 2 <b>March 1</b>	Immunology: Specific Adaptive Immunity <b>Group work eval #4</b>	33	Lab 19 Food and milk analysis
9	March 5 - 9	Molecular Microbiology: DNA replication, Expression and Regulation	12-13	Lactose Operon
10	March 12 – 16 <b>Reading break</b>	Molecular Microbiology: DNA Replication, Expression and Regulation	12-13	Lactose Operon <b>NO LAB Friday</b>
11	March 19 – 23 <b>March 22</b>	Molecular Microbiology: Mutagenesis and Recombination <b>Group work eval #5</b>	14	Lactose Operon
12	March 26 – 30	Molecular Microbiology: Mutagenesis and Recombination	14	Lactose Operon
13	April 2 – 6 <b>April 5</b>	Molecular Microbiology: DNA Acquisition <b>Group work eval #6</b>	14	No Lab Project Evaluation
14	April 9 - 13	Molecular Microbiology: Recombinant DNA Technology	15	No Lab Project Evaluation

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

### **(a) Group work evaluations**

30% (5% Each X6)

### **(b) Final exam**

35%

### **(c) Lab reports**

- i. Identification of unknown bacteria: 3%
- ii. Lactose Operon: 7%

### **(d) Projects**

- i. Microbial Genetics Article Presentation: 15%
- ii. Experimental Design: Induction and Repression of the Lac Operon: 10%

## **6. Grading System**

### **Standard Grading System (GPA)**

<b>Percentage</b>	<b>Grade</b>	<b>Description</b>	<b>Grade Point Equivalency</b>
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	Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite.	1
0-49	F	Minimum level has not been achieved.	0

### **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 E-1.5 at [camosun.ca](http://camosun.ca) for information on conversion to final grades, and for additional information on student record and transcript notations.

<b>Temporary Grade</b>	<b>Description</b>
<b>I</b>	<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.
<b>IP</b>	<i>In progress:</i> A temporary grade assigned for courses that, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. (For these courses a final grade will be assigned to either the 3 <sup>rd</sup> course attempt or at the point of course completion.)
<b>CW</b>	<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.

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

### LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College calendar, at Student Services, or the College web site at [camosun.ca](http://camosun.ca).

### STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, at Student Services, and the College web site in the Policy Section.

#### Plagiarism

Plagiarizing is appropriating the work of another 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. **Plagiarism will not be tolerated.** All written material must be done individually. This **includes lab data and graphs**; although lab work is done in groups, material submitted for grading must be processed and submitted independently. Plagiarism, **including the copying of any part of assignments or lab assignments**, is a serious offence and is considered to be academic misconduct.

#### 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, using unauthorized materials in a quiz/exam and 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-&-support/e-2.5.pdf> and <http://camosun.ca/about/policies/education-academic/e-2-student-services-&-support/e-2.5.1.pdf>) and may be severe.

### ADDITIONAL INFORMATION

#### Missed Exams

**Without exception**, all lecture and lab exams must be written at the scheduled times. **Under no circumstances will a make-up exam be administered.** 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 (a) the instructor is notified in advance of the exam (**not after**) and (b) the student provides **documented evidence** of the circumstance (i.e. medical certificate). **Without exception**, the accommodation will be in the form of adjusting the weighting of the final exam to make up the missing marks. In such cases, the final exam will include extra questions to examine knowledge of the untested subject matter.

**\*\*HOLIDAYS OR SCHEDULED FLIGHTS ARE NOT CONSIDERED TO BE EMERGENCIES \*\*\*\***

Be sure not to plan airline flights for the end of semester until the final exam schedules are finalized and posted.

### **Late Penalties**

All assignments must be handed in on the scheduled date **before 5:00 PM**. Late assignments will be graded but marks equivalent to 15% of the total value of the assignment will be deducted per day past the deadline.

### **Laboratory Attendance**

The laboratory experience is critical to the course objectives and so attendance throughout the entire laboratory session is mandatory and will be noted. 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. If a lab session is missed, another student's data **may not** be used to complete a lab assignment for credit. Exceptions can be made **at the instructor's discretion** in legitimate cases of emergency (e.g. illness); in such cases the instructor must receive **advance notification** and **documented evidence** of the situation (e.g. medical certificate) and grant approval for any accommodation. In cases when a lab is done over two weeks, missing one of the weeks without instructor approval will result in a 50% reduction in the grade for any assignment associated with that lab.