



COURSE OUTLINE

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

Ω 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

(a)	Instructor:	Dr. Mariana Vetrici		
(b)	Office Hours:	TBD		
(c)	Location:	Fisher 342 B		
(d)	Phone:	(250) 370-3465	Alternative Phone:	(250) 721-6586
(e)	Email:	VetriciM@camosun.bc.ca		
(f)	Website:	http://online.camosun.ca		

2. Intended Learning Outcomes

(No changes are to be made to these Intended Learning Outcomes as approved by the Education Council of Camosun College.)

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) Text: Prescott's Microbiology, 8th Edition (Available at 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
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1	Jan 7 - 11	Microbial Interactions and Pathogenicity of Microorganisms	30 & 31	Media Prep Lab 1
2	Jan 14 – 18	Pathogenicity of Microorganisms	31	Lab 11 Enterobacteria
3	Jan 21 – 25	Pathogenicity of Microorganisms Epidemiology of Infectious Diseases	31, 36	Lab 12 Cocci
4	Jan 28 – Feb 1	Epidemiology of Infectious Diseases	36	Lab 13 Unknown Bacteria
5	Feb 4 – 8 February 8	Immunology: Non-Specific Innate Immunity Midterm 1 (Ch 30, 31 & 36)	32	Lab 13 Unknown Bacteria
6	Feb 11 – 15	Immunology: Non-Specific Innate Immunity	32	Lab 17 A&B Coliform Detection
7	Feb 18 – 22	Immunology: Specific Adaptive Immunity	33	Lab 17 C&D Coliform Detection
8	Feb 25 – March 1	Immunology: Specific Adaptive Immunity	33	Lab 19 Food and milk analysis
9	March 4 – 8 March 6	Molecular Microbiology: DNA replication, Expression and Regulation Midterm 2 (Ch 32 & 33)	12-13	Lactose Operon
10	March 12 – 16 Reading break	Molecular Microbiology: DNA Replication, Expression and Regulation	12-13	Lactose Operon
11	March 19 – 23	Molecular Microbiology: Mutagenesis and Recombination	14	Lactose Operon
12	March 26 – 30	Molecular Microbiology: Mutagenesis and Recombination	14	Lactose Operon
13	April 2 – 6	Molecular Microbiology: DNA Acquisition	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)

(This section should be directly linked to the Intended Learning Outcomes.)

- (a) **Midterm 1** 15%
- (b) **Midterm 2** 20%
- (c) **Final Exam** 30%
- (d) **Lab reports** 10%
- (e) **Projects** 25%
 - Microbial Genetics Article Presentation: 15%
 - Experimental Design: Induction/ Repression of the Lac Operon: 10%

6. Grading System

(No changes are to be made to this section unless the Approved Course Description has been forwarded through the Education Council of Camosun College for approval.)

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	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 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, 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 rd course attempt or at the point of course completion.)
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.

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.

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

All lecture and lab exams must be written at the scheduled times. **Under exceptional circumstances a make-up exam may be administered.** 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 make-up exam will be different than the missed exam and it will take place at a date and time to be arranged, but outside scheduled lecture hours.

****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.

Lab Attire

For safety reasons students are **required** to wear closed shoes in all lab times. Flip flops, sandals or shoes with holes are not acceptable.

The wearing of lab coats at all lab sessions is **absolutely mandatory** for both safety and professional reasons. **Cloth coats are preferable** but disposable ones are acceptable. If you forget your lab coat you may rent one at a cost of \$5. The money received through lab coat rental will be donated to **Spread the Net**, an organization that supplies insecticide-impregnated bed nets to help prevent the spread of malaria in Africa.

Failure to wear proper lab attire will result in the inability to enter the lab and the subsequent **loss of credit** for that lab, including any pre-lab assessment credit.

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Other Instructions

Unless otherwise indicated, all written material to hand in must be prepared using a word processor. Templates will be provided, usually by posting on the course D2L website, for this purpose in MS Word .doc or .docx format, and these templates should not be altered except to complete the blank areas. With few exceptions (at the instructor's discretion), all written work must be submitted in **hard copy**, not e-mailed or posted to the D2L website. This is for purely practical reasons: printing out many assignments is problematic because instructors use shared-access printers and documents or parts of documents can go missing easily. Always be on the lookout for special instructions. Finally, unless otherwise instructed, graphs must be prepared using software with graphing capability (e.g. Excel).

Student Responsibilities

1. It is believed that attending and actively engaging in lecture times is in the best interests of student success. Should it be necessary to miss a lecture, however, it is the student's responsibility to catch up on anything that may have been missed (e.g. important announcement or assignments).
2. Students are expected to hand in any required reports on time. Late assignments will be penalized (see above).
3. All written work (including numerical entries in data tables) is to be submitted in word processed form. The only exceptions are calculations or graphs, which may be submitted handwritten or hand-drawn. Electronic submissions (e.g. as e-mail attachments) will not be accepted, except where specified **by the instructor**. Failure to comply will result in late penalties (as indicated).
4. Attendance is important to ensure success. If unable to attend a session, the student is responsible for arranging with a classmate to obtain information such as notes, handouts and announcements.
5. Examinations must be written as scheduled. Exceptions may be made for emergencies at the discretion of the instructor (see above). The student must notify the instructor in advance of the examination.
6. Any evaluation of work for in-class/lab assignments, reports and/or participation will not be given if a student is not present for any reason.
7. Students are expected to work independently on reports unless instructed that the evaluation is based on group effort and evaluation.
8. Students must know and follow all Safety Rules and Procedures. Students must sign the Safety Contract before participating in any laboratory activity. Failure to follow the Safety Rules and Procedures will result in penalties at the discretion of the instructor.
9. Eating or drinking is **strictly prohibited** and failure to comply may result in expulsion from the lab and loss of any associated lab credit. **No exceptions** will be tolerated.
10. **All students must wear a lab coat during laboratory sessions.** Failure to bring a lab coat to the lab may result in being unable to work in the lab and loss of credit for the lab.
11. Students must turn off cell phones and pagers during lectures and laboratory sessions.
12. All laboratories start punctually. Information necessary for performing the laboratory correctly and safely is given at the beginning of the lab. Late attendance may result in inability to attend the lab and subsequent loss of credit for any assignments.