CAMOSUN COLLEGE	**School of Arts & Science** **BIOLOGY DEPARTMENT** **BIOL 203** **Microbiology 2** **Quarter or Semester/Year**

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:	Jeremy Hackett, M.Sc.		
(b)	Office Hours:	Tuesday, Wednesday 8.30 – 10.30; Thursday 9.30 – 10.30		
(c)	Location:	F 314 D Lansdowne Campus		
(d)	Phone:	250-370-3516	Alternative Phone:	
(e)	Email:	HackettJ@camosun.bc.ca		
(f)	Website:			

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) Textbook – Optional but highly recommended
Prescott, Harley and Klein. Microbiology 7th edition (McGraw-Hill)

(b) Lab Manual – Biology Department, 2008-2009 Biology 202/203 Laboratory Manual. Camosun College

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

4. Course Content and Schedule

Week	Date	Lecture topic	Text chapter	Lab exercise
1	Jan 4 - 8	Immunology: Non-Specific / Innate Immunity	31	Media prep
2	Jan 11 - 15	Immunology: Non-Specific / Innate Immunity	31	Lab 11 Enterobacteria
3	Jan 18 - 22	Immunology: Specific / Adaptative Immunity	32	Lab 12 Cocci
4	Jan 25 - 29	Immunology: Specific / Adaptative Immunity	32	Lab 13 Identification Unknown Bacteria
5	Feb 1 - 5	Pathogenicity of Microorganisms	33	Lab 13 Identification Unknown Bacteria
6	Feb 8 - 12	Pathogenicity of Microorganisms	33 38	Lab 17 A&B Detection of coliforms
7	Feb 15 - 19	Epidemiology of Infectious Diseases	36	No lab
8	Feb 22 - 26	Microbial Molecular Biology & Genetics, DNA Replication, Expression, Regulation	11-12	Lab 17 C&D Detection of Coliforms
9	Mar 1 - 5	Microbial Molecular Biology & Genetics, DNA Replication, Expression, Regulation	11-12	Lab 19 Analysis of Food and Milk
10	Mar 8 - 12	Microbial Molecular Biology & Genetics, DNA Replication, Expression, Regulation	11-12	Lab 18 Diagnostic Immunology
11	Mar 15 - 19	Microbial Molecular Biology & Genetics, Mutation, Mutagenesis, Recombination	13	Lactose operon
12	Mar 22 - 26	Microbial Molecular Biology & Genetics, Mechanisms of DNA Acquisition	13	Lactose operon
13	Mar 29 – Apr 2	Microbial Molecular Biology & Genetics, Recombinant DNA Technology	14	No lab Project evaluation
14	Apr 5 - 9	Microbial Molecular Biology & Genetics, Recombinant DNA Technology	14	Lab exam

5. Basis of Student Assessment (Weighting)

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

LECTURE COMPONENT

(a) Assignments – 10% Final mark

- Selected topics in Immunology/Infectious diseases

(b) Quizzes – 10% Final mark

- Quiz #1: Tuesday Jan 26th (5%) – Immunology
- Quiz #2: Tuesday March 16th (5%) – Molecular Biology

(c) Exams – 50% Final Mark

- Midterm: Thursday Feb 25th (25%)
- Final Exam: As Scheduled (25%)

LABORATORY COMPONENT

IMPORTANT NOTE: *Lab attendance is* ***MANDATORY****. During the semester you will be allowed to miss a total of 2 hours without penalty. If more than 2 hours are missed,* ***1% will be deducted for each hour missed.***

(d) Lab exams – 18% Final mark

- Exam #1: Wednesday Feb 24th (8%)
  - Material covered: Labs 11, 12, and 13
- Exam #2: Wednesday Apr 7th (10%)
  - Material covered: Labs 17, 18, 19 and lactose operon

(e) Lab Reports – 12% Final mark

- Lab 13 (4%)
- Lab 18 (4%)
- Lactose operon lab (4%)

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	*Incomplete*: 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	*In progress*: 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 3rd course attempt or at the point of course completion.)*
CW	*Compulsory Withdrawal:* 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.