CAMOSUN COLLEGE	**School of Arts & Science** **BIOLOGY DEPARTMENT** **BIOL 203** **Microbiology 2** **Winter 2011**

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

Instructor:	Dominic Bergeron, Ph.D.
Office Hours:	• Tuesday 10h30 - 11h20 • Wednesday 10h30 - 11h20 • Thursday 2h30 - 4h20 • Friday 3h30 - 4h20
Location:	F 252 B
Phone:	250-370-3465
Email:	BergeronD@Camosun.bc.ca
Website:	ThinkingSapiens.com

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: Prescott's Microbiology, 8th 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 10 - 14	Microbial Interactions and Pathogenicity of Microorganisms	30 & 31	Media Prep
2	Jan 17 - 21	Pathogenicity of Microorganisms	31	Lab 11 Enterobacteria
3	Jan 24 – 28 *Quiz#1: Jan 27*	Pathogenicity of Microorganisms Epidemiology of Infectious Diseases	31, 36	Lab 12 Cocci
4	Jan 31 – Feb 4	Epidemiology of Infectious Diseases	36	Lab 13 Unknown Bacteria
5	Feb 7 - 11	Immunology: Non-Specific Innate Immunity	32	Lab 13 Unknown Bacteria
6	Feb 14 - 18	Immunology: Non-Specific Innate Immunity	32	Lab 17 A&B Coliform Detection
7	Feb 21 – 25 *Midterm: Feb 24*	Immunology: Specific Adaptive Immunity	33	Lab 17 C&D Coliform Detection
8	Feb 28 – March 4	Immunology: Specific Adaptive Immunity	33	Lab 19 Food and milk analysis
9	March 7 - 11	Molecular Microbiology: DNA replication, Expression and Regulation	12-13	Lab 18 Diagnostic Immunol
10	March 14 - 18	Molecular Microbiology: DNA Replication, Expression and Regulation	12-13	Lactose Operon
11	March 21 – 25 *Quiz#2: March 24*	Molecular Microbiology: Mutagenesis and Recombination	14	Lactose Operon
12	March 28 – April 1	Molecular Microbiology: Mutagenesis and Recombination	14	Lactose Operon
13	April 4 - 8	Molecular Microbiology: DNA Acquisition	14	No Lab Project Evaluation
14	April 11 - 15	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) Exams

a. Midterm: 25%
b. Final Exam: 25%

(b) Quizzes

a. Quiz #1: 5%
b. Quiz #2: 5%

(c) Lab reports

a. Identification of unknown bacteria: 3%
b. Lactose Operon: 7%

(d) Projects

a. Project #1: Microbial Genetics Article Presentation: 15%
b. Project #2: Experimental Design: Induction and Repression of the Lac Operon: 15%

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.

ADDITIONAL COMMENTS AS APPROPRIATE OR AS REQUIRED