Department of Science
Grande Prairie Regional College

MI 2950
Infection & Immunity

Course Outline
Winter 2008-2009

Instructor
Philip Johnson B.Sc., M.Sc., Ph.D., M.S.P.H.
Office: J224
Phone: 539-2863
E-mail: *johnson@gprc.ab.ca*

Course Description:	This course introduces the principles and mechanisms of immunity in eucaryotes. It will provide an overview of the major groups of infectious agents (virus, bacteria, parasites) and examine selected microorganisms within the context of the host response to pathogens as well as pathogen evasion strateiies.
Pre-requisites:	BC 2000 or BC 2030, and MI 2650
Course Goals:	1. To understand basic aspects of the immune response to pathogens and to be able to read with confidence newspaper and popular magazine reports dealing with immunity and infectious diseases. 2.To enroll in more advanced undergraduate courses in the areas of immunology and infections. 3. To write concise answers to questions relating to complex biological phenomena.
Class Schedule:	Tuesdays and Thursdays 0830-0950, E306
Transferability:	IMIN 200 Immunology and Infection (University of Alberta)
Textbook:	There are no required textbooks for this course. A number of relevant books will be placed on Reserve in GPRC Library, and students will be provided with a list of these books. It is expected that students read the relevant material to enhance and improve knowledge and understanding of material covered in classes.
Requirements:	Since participation in lectures and completion of assignments are essential to achieving success in this course, regular attendance at classes is highly recommended. Students who chose not to attend classes must assume whatever risks are involved. In this regard, your attention is directed to the Academic Regulations and Student Responsibilities of Grande Prairie Regional College as described on pages 39-51 of the 2008-2009 G.P.R.C. Calendar.

Evaluation:

Mid-term Exam I	30%
Mid-term Exam II	30%
Final Exam	40%

Mid-term I will cover material in the Immunology section of the course.
Mid-term II will cover material from the Pathogenesis section of the course.
The Final Exam will be comprehensive, with approximately 25% of weight given to material covered on the first two mid-terms.
Throughout the course an emphasis will be placed on the integration of the concepts of immunology and infection. A thorough understanding of material covered in the Immunology section will be essential on ALL exams.

Final grades will be assigned according to each students overall mark in the course. A bell-curve WILL NOT be used to assign grades.

MI 2950 – Topic Outline

	topic
1	Introduction to Immunology
2	Innate defenses: cells and tissues of the immune system
3	Innate Signaling: The Toll Pathway
4	Introduction to Adaptive Immunity
5	Antigen Capture and Presentation
6	Antibodies: Structure and Generation
7	Humoral Immunity
8	T cell development
9	Complement
10	Cellular Immunity
11	Hypersensitivities
12	Immune response to eukaryotic parasites
	MID-TERM EXAM I
13	Bacterial Pathogenesis: Introduction and Definitions
14	Bacterial structure in relationship to pathogenesis
15	Adherence and invasion: pili, adhesisns, iron uptake
16	Bacterial strategies of immune evasion
17	Bacterial secretion systems used in pathogenesis
18	Bacterial toxins
19	*Listeria monocytogenes*
20	*Campylobacter* and *Helicobacter*
21	*Mycobacterium tuberculosis*
	MID-TERM EXAM II
22	Viral Pathogenesis
23	Viral lifestyles and pathogenesis
24	Viral attachment and entry
25	Viral replication strategies: RNA viruses (HIV; poliovirus)
26	Viral replication strategies: DNA viruses and mutation (herpes)
27	Innate defenses against viruses
28	Cellular interactions in viral recognition
29	Viral interference in host immunity – CTL escape
30	Viral escape from antibodies
31	Emergence of new viruses