



DEPARTMENT of SCIENCE
COURSE OUTLINE –WINTER 2021

MI2950 (A3): Infection and Immunity – 3 (3-0-0) 45 Hours for 15 Weeks

INSTRUCTOR: Beatrice Amar Ph.D. **PHONE:** 780-539-2031
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OFFICE HOURS: Mon / Wed / Fri (10 a.m. - 12 noon and by appointment)

WINTER 2021 DELIVERY:

Remote Delivery. This course is delivered remotely. There are no face-to-face or onsite requirements. Students must have a computer with a webcam and reliable internet connection. Technological support is available through helpdesk@gprc.ab.ca
Note: GPRC reserves the right to change the course delivery.

CALENDAR 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 strategies.

PREREQUISITE(S)/COREQUISITE: BC2000 and MI2650

REQUIRED TEXT/RESOURCE MATERIALS:

There is no textbook for the course. All the course material will be covered in lectures.

DELIVERY MODE(S): Lectures (Remote) – Tuesday and Thursday 14.30 - 15.50

COURSE OBJECTIVES:

1. To understand basic aspects of the immune response to pathogens.
2. To facilitate an in-depth understanding of the pathogenesis of infections.

3. To foster the development of critical thinking skills.

LEARNING OUTCOMES:

Upon successful completion of this course a student will have a working knowledge of the biological basis of immunology and the pathogenesis of infectious diseases.

TRANSFERABILITY:

Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at the Alberta Transfer Guide main page <http://www.transferalberta.ca>

** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability

EVALUATIONS:	Mid-term Exam I -	25%	- In order to defer an exam due to illness
	Mid-term Exam II -	25%	you will require a medical note.
	Presentation	- 12%	
	Assignments	- 8%	
	Final Exam	- 30%	

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 cumulative, with approximately 40% of marks assigned to material covered in the Immunology and Pathogenesis sections, and 60% to that from the Virology section. 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.

GRADING CRITERIA:

Alpha Grade	4-point Equivalent	Percentage Guidelines		Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	90-100		C+	2.3	67-69
A	4.0	85-89		C	2.0	63-66
A-	3.7	80-84		C-	1.7	60-62
B+	3.3	77-79		D+	1.3	55-59
B	3.0	73-76		D	1.0	50-54
B-	2.7	70-72		F	0.0	00-49

COURSE SCHEDULE/TENTATIVE TIMELINE:

MI 2950 – Topic Outline

- 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, adhesins, iron uptake
- 16 Bacterial strategies of immune evasion
- 17 Bacterial secretion systems used in pathogenesis
- 18 Bacterial toxins
- 19 Examples of bacterial diseases

MID-TERM EXAM II

- 20 Introduction to viruses
- 21 Structure and classification of viruses
- 22 Viral replication
- 23 Patterns of infection
- 24 Immune response to viruses
- 25 Influenza viruses
- 26 Human Immunodeficiency Virus
- 27 Herpesviruses
- 28 Poliovirus

STUDENT RESPONSIBILITIES:

Students should attend all lecture classes and complete all assignments to get good grades in this course.

STATEMENT ON PLAGIARISM AND CHEATING:

Cheating and plagiarism will not be tolerated and there will be penalties. For a more precise definition of plagiarism and its consequences, refer to the Student Conduct section of the College Calendar at <http://www.gprc.ab.ca/programs/calendar/> or the College Policy on Student Misconduct: Plagiarism and Cheating at <https://www.gprc.ab.ca/about/administration/policies>

**Note: all Academic and Administrative policies are available on the same page.