PH8005: PRINCIPLES OF IMMUNOLOGY

Effective Term
Semester B 2025/26

Part I Course Overview

Course Title
Principles of Immunology

Subject Code
PH - Infectious Diseases and Public Health
Course Number
8005

Academic Unit
Infectious Diseases and Public Health (PH)

College/School
Jockey Club College of Veterinary Medicine and Life Sciences (VM)

Course Duration
One Semester

Credit Units
3

Level
R8 - Research Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
Nil

Part II Course Details

Abstract
How does the immune system work? What are the molecular and cellular components and pathways that protect an organism from infectious agents or cancer? In this course, students will learn the cells, molecules, and their interactions in

immune responses. At the beginning of this course, it will provide an overview of the structure, function, and genetics of key immune system cells and molecules, including antibodies, B- and T-cell receptors, major histocompatibility complex proteins and cytokines. It will also cover the processes of lymphocyte development and antigen presentation. In the latter part of the course, it will focus on immune responses against pathogens. It will cover the basic concepts related to vaccine development, tumor immunity, immune deficiencies, autoimmunity, and immunotherapy. Upon completion of the course, students will have a good understanding of the essential elements of the immune system, preparing them to engage further in this rapidly evolving field.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Students will acquire basic knowledge of the immune system	20%	x	x	
2	Students will understand the development of different lymphocytes and immune diversity	20%	x	x	
3	Students will understand immune responses against different pathogen infections, tumor, or autoimmunity diseases	30%		x	x
4	Students will understand the immunological disease mechanisms and identify therapies involving immune modulation	30%			x

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Learning and Teaching Activities (LTAs)

	LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lectures	Students will engage in interactive lectures to understand the fundamental aspects of immune cells, immune molecules, and their interactions in immune responses	1, 2, 3, 4	2 hrs/wk (26 hrs in total)
2	Tutorials	Students will apply the learned knowledge from the lectures to solve some immunological problems	1, 2, 3, 4	1 hr/wk (13 hrs in total)

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks ("-" for nil entry)	Allow Use of GenAI?
1	Group/individual presentation	1, 2, 3, 4	50	-	No
2	Final report	1, 2, 3, 4	50	-	No

Continuous Assessment (%)

100

Assessment Rubrics (AR)

Assessment Task

Group/individual presentation

Criterion

Students will have the ability to explain basic knowledge of the immune system and integrate the basic knowledge to explain immune system development, humoral & cell-mediated immunity, disease and treatments involving immunization, immunodeficiency, autoimmunity, and cancer

Excellent

High

Good

Significant

Fair

Moderate

Marginal

Basic

Failure

Not reaching basic levels

Assessment Task

Final report

Criterion

Students will have the ability to apply the knowledge learned in case studies

Excellent

High

Good

Significant

Fair

Moderate

Marginal

Basic

Failure

Not reaching basic levels

Part III Other Information

Keyword Syllabus

Innate immunity, adaptive immunity, immune response, pathogen, immunological diversity, disease, immune tolerance, immunization, immunotherapy

Reading List

Compulsory Readings

	Title
1	Janeway's Immunobiology 9th Edition, by Kenneth M Murphy (Author, Washington Univ. School of Medicine, St. Louis), Casey Weaver (Author, University of Alabama at Birmingham, School of Med)

Additional Readings

	Title
1	Kuby Immunology 8th edition, by Jenni Punt (Author), Sharon A. Stranford (Author), Patricia P. Jones (Author), Judith A. Owen (Author)