



Jordan University of Science and Technology
Faculty of Science & Arts
Applied Biological Sciences Department

BIO734 Advanced Immunology - JNQF Level: 9

First Semester 2024-2025

Course Catalog

3 Credit Hours. This course will describe the immune systems of vertebrates that enable them to recognize and respond specifically to foreign substances. The molecular and cellular basis of immunity will be emphasized. The roles of antigens, antibodies and immunocompetent cells in pathogenesis and immunity to infectious diseases will be covered. Specific topics include antigens and antigenic determinants, antigen-antibody reactions, antibody structure and formation, anatomy and physiology of immunocompetent tissues, cellular immune responses, the complement system and other immune modulators, phagocytosis, monoclonal antibody formation, immunogenetics and the histocompatibility antigens, diseases of the immune system and immunopathology, tolerance, inflammation, allergies, and hypersensitivity reactions. The immunodeficiency caused by HIV will be discussed.

Teaching Method: Blended

Text Book

Text Book	
Title	Cellular and molecular Immunology
Author(s)	Abbas A., Lichtman A. and Pflai, S.
Edition	8th Edition
Short Name	Immunology
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Short Immunology	A short coarse in Immunology	Coico and Benjamini E.	6th Edition	
Medical Immunology	Immunology for medical students	Nairn R. and Helbert M	2nd Edition	

Instructor

Name	Prof. Nizar Abuharfil
Office Location	PH1L1

Office Hours	Sun : 09:00 - 10:30 Mon : 12:00 - 14:00 Tue : 10:30 - 12:30 Thu : 10:00 - 11:00
Email	harfeil@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Mon : 14:00 - 16:00 Room: SF08

Tentative List of Topics Covered		
Weeks	Topic	References
Weeks 1, 2, 3, 4, 5, 6	Basic Immunology including innate immunity, Antigen and antibody structure and HLA system	
Weeks 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	Lymphocyte development, diversity and activation. Immunobiology including, autoimmune diseases, hypersensitivity, immunodeficiencies and tumor immunology	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Describe the basic principles of antigens and antibodies [1A] [1L9K1]	20%	
Critically discuss the key parameters of innate immunity, supported by analysis of experimental evidence and studies that highlight mechanisms, pathways, and roles in host defense [1A, 20D, 1F] [1L9K2, 1L9C2]	20%	
Examine the immunochemistry and immunogenetics of B cells and antibodies, with an emphasis on lymphocyte diversity, the somatic DNA recombination mechanism, and supporting experimental evidence [1A, 1D] [1L9S2]	20%	
Analyze the intercellular and extracellular activation pathways of CD4+ T cell immunity, incorporating experimental evidence to explain the mechanisms involved in T cell activation and function [1A] [1L9K1, 1L9S2]	20%	
Evaluate the humoral immune response mediated by antibodies, emphasizing the cooperative interactions between activated T and B cells and analyzing experimental evidence that elucidates these processes [1D] [1L9K1, 1L9S2, 1L9C2]	20%	

Relationship to Program Student Outcomes (Out of 100%)					
A	B	C	D	E	F
50.91			48.18		0.91

Relationship to NQF Outcomes (Out of 100%)			
L9K1	L9K2	L9S2	L9C2
36.67	10	36.67	16.67

Evaluation	
Assessment Tool	Weight
First Exam	25%
Second Exam	25%
Final Exam	50%

Policy	
course policy	<ol style="list-style-type: none"> 1. Your class attendance is mandatory. Absences in excess of 20% of the total lecture hours will result in your being dropped from the course with a failing grade. 2. Make-up exam appeals should be filed within Two days of the missed exam. 3. Cell phones are prohibited during examinations and must be turned off during lecture. No incoming or outgoing calls or text messages are allowed. 4. Unethical conduct, including cheating during examinations, will result in punishment by the university administration.

Date Printed: 2024-10-28