



Course Specification

— (Bachelor)

Course Title: Immunology
Course Code: 2053104-3
Program: Bachelor in Biotechnology
Department: Biotechnology Department
College: College of Science
Institution: Taif University
Version: V4
Last Revision Date: 3/1445 – 9/2023

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A. General information about the course:

1. Course Identification

1. Credit hours:

3 (2 Lecture, 1 Lab)

2. Course type

A. ☐ University ☐ College ☒ Department ☐ Track ☐ Others
B. ☒ Required ☐ Elective

3. Level/year at which this course is offered: (5th level/3rd Year)

4. Course general Description:

This course is designed to introduce fundamental principles of immunology including the specialized organs and cells of the immune system, innate and acquired immunity, antigens, and antigen recognition by the innate and adaptive immune cells. It will also cover the structure, function, and genetics of key molecules of the immune system such as toll-like receptors, T- and B-cell receptors, antibodies, major histocompatibility complex (MHC) proteins, and major cytokines such as interferons, interleukins and tumor necrosis factors. The course will also focus on natural immune processes such as immune tolerance, antigen presentation, normal immune responses to infections, tumors, vaccination, and memory generation. Disorders of the immune system will be introduced under three main categories: autoimmunity, allergy, and immune deficiency. The course will also discuss major scientific advances in the field of immunology such as the development of monoclonal antibodies and recombinant molecules and their applications as diagnostic tools and therapeutics.

5. Pre-requirements for this course (if any):

Animal Biology, 2052101-3

6. Pre-requirements for this course (if any):

None

7. Course Main Objective(s):

The objective of this course is to enable students to understand the fundamental principles of immunology. By the end of this course, the student should know the cells and organs of the immune system, the difference between innate and adaptive immunity, the key molecules, processes, and disorders of the immune system.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	45	100%
2	E-learning		





No	Mode of Instruction	Contact Hours	Percentage
3	Hybrid <ul style="list-style-type: none"> Traditional classroom E-learning 		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	15
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Recall the structure and function of the molecules, cells, and organs involved in immunity.	K4	Lecture	Written Exam
1.2	Recognize major components and mechanisms involved in immune response and in immune system disorders and their diagnosis	K4	Lecture	Written Exam
2.0	Skills			
2.1	Practice immunological techniques and data presentations	S3	Project	Practical Exam
3.0	Values, autonomy, and responsibility			
3.1	Adopt the value of working within a team, personal organization, and cooperation with others	V2	Discussion	Oral exam



C. Course Content

No	List of Topics	Contact Hours
1.	Immune system organs, cells and molecules.	4
2.	Antigen, antigenicity, immunogenicity, immune tolerance, and antigen presentation	4
3.	Types of immunity: 1. Innate immunity – innate immune cells recognition and response	4
4.	Types of immunity: 2. Adaptive immunity – adaptive immune cells recognition and response	4
5.	Antibodies (Immunoglobulins)	2
6.	Vaccination	2
7.	Disorders of immune system: Hypersensitivity	2
8.	Disorders of immune system: Autoimmunity	2
9.	Disorders of immune system: Immune deficiency	2
10.	Advances in the field of immunology (monoclonal antibodies and recombinant molecules and their applications as diagnostic tools and therapeutics)	4
Total		30

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Midterm Exam	Week 7	20%
2.	Periodical exam	Week 10	10%
3.	Oral exam	Week 11	10%
4.	Practical Exam	Week 15	20%
5.	Final Exam	Week 16	40%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Cellular and Molecular Immunology.6th Ed., Abul Abbas, K Andrew H. Lichtman Shiv Pillai. Philadelphia, PA: Saunders, 2007
Supportive References	Janeway's Immunobiology, Garland Sciences, 8th edition, Kenneth M. Murphy, Paul Travers, Mark Walport, 2011.
Electronic Materials	NBCI website: https://www.ncbi.nlm.nih.gov
Other Learning Materials	Immunology Drug Discovery Screening Services: https://avicentrix.com/ : British Society of Immunology: https://www.immunology.org/ Immunology Virtual Lab:



<https://www.hhmi.org/biointeractive/immunology-virtual-lab>

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<ol style="list-style-type: none"> 1. One classroom 2 hours per week for each section 2. Laboratory 3 hours per week for each practical section
Technology equipment (projector, smart board, software)	Data show, internet connection.
Other equipment (depending on the nature of the specialty)	<ol style="list-style-type: none"> 1. Microscopes 2. Kits: antigens and antibodies 3. ELIZA unit

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Peer Review, Students	Direct (Independent Reviewer), Indirect (survey)
Effectiveness of Students assessment	Faculty members	Direct (Random Correction)
Quality of learning resources	Students	Indirect (survey)
The extent to which CLOs have been achieved	Faculty members	Direct
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	DEPARTMENT COUNCIL
REFERENCE NO.	6
DATE	5/11/2023