Course Specification Clinical Immunology

(2025)

1. Basic Information

Course Title (according to the bylaw)	(Basic) Clinical Immunology			
Course Code (according to the bylaw)	CPAT 704			
Department/s participating in delivery of the course	Clinical and Chemical pathology department			
Number of credit hours/points of the course (according to the bylaw)	**Theoretical**	**Practical**	**Other (specify)**	**Total**
	2h	**0.5 h**		
Course Type	اجباري			
Academic level at which the course is taught	الفرقة/المستوي الاول			
Academic Program	**MD of Clinical and Chemical pathology**			
Faculty/Institute	faculty of medicine			
University/Academy	Benha university			
Name of Course Coordinator	Prof. Dr. Eman Ramadan			
Course Specification Approval Date	**9/14/2025**			
Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)	**9/14/2025**			

2. Course Overview (Brief summary of scientific content)

1.1. Apply the essential knowledge about the structure and function of the

immune system and the role of the immune system in health and disease.

1.2. Identify the role of the immune system in pathogenesis of different diseases,

clinical application in diagnosis, follow up and treatment.

1.3. Identify the principles of immunological tests to make a diagnosis of various

diseases.

1.4. Outline the immunological investigations and their clinical interpretations.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs(NARS/ARS)

Program Outcomes(NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		2.a.1.	Acquire detailed knowledge of the immune system, its normal function and conditions associated with its abnormal activity or function.
		2.a.2	Describe Cellular and humoral immunity and diseases of immunity, clinical serology and immunology.
		2.a.3.	Understand the basic physiology and clinical immunology of the disease processes under investigation in the laboratory.
		2.a.4.	Demonstrate the role of immune system in tumors, immune deficiency diseases, autoimmune diseases, hypersensitivity and organ transplantation.

Program Outcomes(NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		2.a.5.	Understand the different serological and immunological diagnostic tests, its role in diagnosis and follow up.
		2.a.6	Know the basic and impact of molecular technology in immunology.
		2.b.1. Design approach for diagnosis of different immunological diseases. 2.b.2. Analyze immunological and molecular reports.	
		2.b.3. Interpret results of serological and molecular tests.	

4. Teaching and Learning Methods

1- Lectures

2- Seminars

3 - Clinical sessions

4 - Groups discussion

5- Case presentation with interpretation of results

6- E lectures

Course Schedule

Lectures (hrs)	Topic	Weeks	ILOS
2	Introduction to the Immune System: Nomenclature, General Properties and Components	1	2.a.1. 2.b.3. 2.d.1. 2.d.4. 2.e.1. 2.e.3.
2	Innate Immunity: The Early Defense Against Infections	2	2.a.1. 2.b.3. 2.d.1. 2.d.3. 2.e.1. 2.e.3.
2	Antigen Capture and Presentation to Lymphocytes	3	2.a.1. 2.a.2. 2.d.1. 2.d.3. 2.d.4. 2.e.1. 2.e.3.
3	Antigen Recognition in the Adaptive Immune System: Structure of Lymphocyte Antigen Receptors and Development of Immune Repertoires	4	2.a.1. 2.a.2. 2.b.3. 2.d.1. 2.d.3.

			2.e.1. 2.e.3.
2	T Cell–Mediated Immunity Activation of T Lymphocytes by Cell-Associated Antigens	5	2.a.1. 2.a.2. 2.d.1. 2.d.3 2.d.4. 2.e.1. 2.e.3.
2	Effector Mechanisms of T Cell–Mediated Immunity	6	2.a.1. 2.a.2. 2.b.3. 2.d.1. 2.d.4. 2.e.1. 2.e.3.
2	Humoral Immune Responses: Activation of B Lymphocytes and Production of Antibodies	7	2.a.1. 2.a.2. 2.d.1. 2.d.3. 2.d.4. 2.e.1.

			2.e.3.
2	Effector Mechanisms of Humoral Immunity	8	2.a.1. 2.a.2. 2.b.3. 2.d.1. 2.d.4. 2.e.1. 2.e.3.
2	Immunological Toleranceand Autoimmunity	9	2.a.1. 2.a.2. 2.b.3.

			2.d.1. 2.d.3. 2.d.4. 2.e.1. 2.e.3.
2	Immune Responses Against Tumors and Transplants	10	2.a.1. 2.a.2. 2.b.3. 2.d.1. 2.d.3. 2.e.1. 2.e.3.
2	Hypersensitivity	11	2.a.1. 2.a.2. 2.b.3. 2.d.1. 2.d.4. 2.e.1. 2.e.3.
2	Congenital and Acquired Immunodeficiency	12	2.a.1. 2.a.2. 2.b.3.

Practical (hrs)	Topic	Weeks	ILOS		
					2.d.1. 2.d.3. 2.d.4. 2.e.1. 2.e.3.
2	Molecular assessment of Gene polymorphism : Principle - Advantage - Disadvantage -Cost				2.a.1. 2.a.2. 2.b.3. 2.d.1. 2.d.3. 2.d.4. 2.e.1. 2.e.3.
2	Flowcytometric assay validation & verification protocols and principle of panel design				2.a.1. 2.b.3. 2.d.1. 2.d.4. 2.e.1. 2.e.3.
1	Proficiency Testing : What's new ?				2.a.1. 2.a.2. 2.d.1. 2.d.3. 2.d.4.

2	Radial immune diffusion	1,2	2.a.3. 2.b.2. 2.c.1. ⟶ 2.c.5. 2.d.1. 2.d.3. 2.e.1. ⟶ 2.e.3.
2	Immune electrophoresis	3,4	2.a.3. 2.b.2. 2.c.1. ⟶ 2.c.5. 2.d.2. 2.d.3. 2.e.1. ⟶ 2.e.3.
3	ELISA	5,6,7	2.a.3. 2.b.2. 2.c.1. ⟶ 2.c.5. 2.d.1. 2.d.4. 2.e.1. ⟶ 2.e.3.

3	Immunofluorescence	8,9,10	2.a.3. 2.b.2. 2.c.1. ⟶ 2.c.5. 2.d.1. 2.d.4. 2.e.1. ⟶ 2.e.3.
2	PCR	11,12	2.a.3. 2.a.4. 2.b.2. 2.b.3. 2.c.1. ⟶ 2.c.5. 2.d.2. 2.d.3. 2.d.4. 2.e.1. ⟶ 2.e.3.
3	Case study	13,14,15	

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1written (Semester work)	-		
2	Exam 2 ..... (Semester work)	-		
3	Final Written Exam	√	75	
	Final Practical/Clinical/... Exam	√	30	
	Final Oral Exam	√	20	
	Assignments / Project /Portfolio/ Logbook	√		
	Field training	√		
	Other (Mention)			

* The methods mentioned are examples, the organization may add and/or delete

6. Learning Resources and Supportive Facilities*

Learning resources (books, scientific references, etc.) *	**The main (essential) reference for the course** (must be written in full according to the scientific documentation method)	- Jawetz, Melnick and Adel berg's Medical Microbiology, (7.1. **Basic materials:** Immunology Lippencott s illustrated reviews(2013) Log book (by staff members, 2009)
	Other References	Basic Immunology Abul K. Abbas (Abul K. Abbas ,2018)

		Lecture notes in Immunology , Todd (Ian Todd &Gavin Spikett) **7.3. Recommended books:** Stites, Basic and Clinical Immunology (Dniel P. Stites 2021) Roitt, Basic Immunology (Ivan M. Roitt&Peter J. Delves,2019
	Electronic Sources (Links must be added)	- Journal of Immunology - American Journal of Immunology - Periodicals, web sites, etc.,: - http://www.medscape.com. -http://www.pubmed.com - http://sciencedirect.com
	Learning Platforms (Links must be added)	
	Other (to be mentioned)	
Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	√
	Supplies	√
	Electronic Programs	√
	Skill Labs/ Simulators	√
	Virtual Labs	
	Other (to be mentioned)	

*** The list mentioned is an example, the institution may add and/or delete depending on the nature of the course**

Name and Signature **Course Coordinator** ا.د. ايمان رمضان	**Name and Signature** **Program Coordinator** أ.د/ ياسر اسماعيل