

Republic of Yemen
Ministry of Higher Education & Scientific Research
21 SEPTEMBER UNIVERSITY of MEDICALS & APPLIED
SCIENCES



Faculty of Laboratory medicine..

Department of MICROBIOLOGY & IMMUNOLOGY

Course Specification of **Advanced medical immunology I**

Course No. (03.12. 314)
2022/2023

Prepared by:	Reviewed by:	Head of the Department:	Vice Dean for Quality affairs	Dean of College:
Dr\Gamil Taher Abdul Mughni	Dr\ DrNawal Al-Henhena	Dr\Gamil Taher Abdul Mughni	Dr\Gamil Taher Abdul Mughni	- Associate Prof. Dr. Ebtessam Al-Zabedi

I. Course Identification and General Information:

1	Course Title:	Advanced Medical immunology I			
2	Course Code & Number:	(03.12. 314)			
3	Credit Hours:	Theory Hours			
		Lecture	Exercise	Practical	Credit Hours
		2	0	0	2
4	Study Level/ Semester at which this Course is offered:	1st Level / 1st Semester			
5	Pre –Requisite (if any):	None			
6	Co –Requisite (if any):	None			
7	Program (s) in which the Course is Offered:	Master degree in Medical Microbiology & Immunology			
8	Language of Teaching the Course:	English			
9	Study System:	Semester			
10	Mode of Delivery:	Regular			
11	Location of Teaching the Course:	University Campus			
12	Prepared by:				
13	Date of Approval:	2022-2023			

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II. Course Description:

Advanced Immunology is provides an in-depth understanding of the immune system. The course covers a wide range of topics, including: The structure and function of the immune system, cellular and molecular mechanisms of immunity, Antigen processing and presentation, Tissue-specific immune responses, Immune-mediated pathologies and Vaccination

III. Alignment Course Intended Learning Outcomes with program outcomes

III. Course Intended Learning Outcomes (CILOs)

Referenced PILOs

A. Knowledge and Understanding:

Upon successful completion of the course, students will be able to:

a1	Describe the structure and function of the immune system.	A2
a2	Discuss the immune responses to infection, tumors, allergens, and autoimmunity	A4

B. Intellectual Skills:

Upon successful completion of the course, students will be able to:

b1	Explain the cellular and molecular basis of immunity	B1
b2	Illustrate the immune responses damage and potential immunotherapy for the treatment of disease	B2

D. Transferable Skills:

Upon successful completion of the course, students will be able to:

d1	Communicate effectively about immunology to a variety of audiences	D1
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IV. Alignment Course Intended Learning Outcomes with Teaching Strategies and Assessment methods :

(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:

	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1	Describe the structure and function of the immune system.	Lectures	Exam
a2	Discuss the immune responses to infection, tumors, allergens, and autoimmunity	Lectures	Exam

(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:

	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
b1	Explain the cellular and molecular basis of immunity	Lectures	Exam
b 2	Illustrate the immune responses damage and potential immunotherapy for the treatment of disease	Lectures	Exam

C Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:

(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:

	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
d1	Communicate effectively about immunology to a variety of audiences	Lectures	Exam

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Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	Number of Weeks	contact hours	Learning Outcomes
1	Introduction of Immunology	- eive Historical background about the development of the discipline of immunology. -Definition immunology - Definition immunological terms. -Classification of immune system	1	2	a1,a2,b1,b2,d1
2	Organs and Cells of the immune system	-Describe the organs, tissue, cells of the immune system - Cells innate immune response - Antigen presenting cells and large granular lymphocytes - Cells Adaptive immune response	1	2	a1,a2,b1,
3	Innate or Natural immunity	Definition 1-Components and functions of the natural immune defense system. -Differentiate between the main features of natural and adaptive immunity Recognize (PAR)	1	2	a1,a2,b1,b2,d1
4	Cellular defense mechanism Phagocytosis, Cytotoxicity (NK cells) and inflammation	-Definition -Type -Step -Mechanism of killing	1	2	a1,a2, d1
5	Antigens	Definition : Antigen Immunogen Adjuvant Hapten. – Types and properties of antigen,	1	2	a1,a2,b1,b2,d1
6	Complement system	-Definition -Properties -Aactivation pathways:	1	2	a1,a2,b1 d1

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		Classical Alternative lectin pathway. -Function -Regulation			
7	Med term exam		1		a1,a2,b1
8	Antibodies structural	Definition : Immunoglobulin (Ig) Describe the structure and function of the Immunoglobulin -Evaluate the components of Ig molecule in relation to its function. -Explain the components of Ig molecule and classification into classes and subclasses of Immunoglobulins. Illustrate the components of Ig which interaction with antigens , interaction with receptors on inflammatory cells and other molecules. Immunoglobulins in disease process.	1	2	a1,a2,b1
9	Adaptive immunity:	Define Properties Cells mechanisms of humeral and cell-mediated immunity	3	2	a1,a2,d1
10	Humoral	Define Properties Cells T-dependent T- independent in the activation of B lymphocytes. Describe the transformation of activated B cells into plasma cells. recognize that plasma cells are the cells that synthesize Immunoglobulins (antibodies). describe the control mechanism of antibody mediated response.	1	2	a1,a2,b1

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		know techniques of Immunoglobulins measurement			
11	cellular	Define Properties Cells understand the activation of different T lymphocyte subpopulations and subsets. Compare T Cell Receptor (TCR) and B Cell Receptor (BCR) to show similarity and dissimilarity in relation to function. To describe the mechanism of cytotoxicity by cytotoxic T lymphocyte (CTL) and other cell. To understand the control mechanism of CMI response.	2	6	a1,a2,b1
12	Cytokine	-Definition the different terms for cytokines nomenclature. -Classification and function of different cytokines. -Mode of action and effects on immune functions. -chemokines function. -role of cytokines in health and disease.	1	2	a1,a2,b1,b2
13	Vaccines	-Define -Type -	1	2	a1,a2,b1
14	Final exam		1	2	
Number of Weeks /and Units Per Semester			16	32	

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V. Teaching Strategies of the Course:

1-	Lectures
2-	Self leaning
3-	Group research

VI. Assessment Methods of the Course:

No	Assignment	
1	Written Exams (Short Essays) and Quizzes	a1,a2,b1,b2
2	Written Exams(MCQ)	a1,a2,b1,b2,d1
3	Student presentation	

VII. Assignments:

No.	Assignments	Week Due	Mark	Proportion of Final Assessment	Aligned CILOs (symbols)
1	Midterm Exam	7	25	25%	a1,a2,b1,b2,d1
2	Activity	Throughout the semester	5	5%	a1,a2,b1,b2,d1
3	Final Exam	14	70	70%	a1,a2,b1,b2,d1
Total					

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Learning Resources:	
<ul style="list-style-type: none"> Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher). 	
1- Required Textbook(s) (maximum two).	
1- lecture note 2- Kuby Immunology, 10 th Edition, 2019: Jenni Punt; Sharon Stranford; Patricia Jones; Judy Owen	
2- Essential References.	
1-Roitt's Essential Immunology, 13th Edition. 13th Edition, Peter J. Delves et al., Wiley-Blackwell, 2017. 2-Cellular and Molecular Immunology 10th edition, Abul K. Abbas, ELSVIEVER, 2021.	
3- Electronic Materials and Web Sites etc.	
1- https://www.youtube.com/results?search_query=Dr.+Saleh+Bahaj 2- https://onlinelearning.hms.harvard.edu/hmx/courses/immunology/ 3- https://www.edx.org/learn/immunology 4- https://onlinelearning.hms.harvard.edu/hmx/courses/hmx-immunology/ https://immunology.utoronto.ca/online-learning	

XI. Course Policies:	
1	Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	Tardiness: -If the student does not attend for more than 6 times, the student will be obligated to withdraw from the course
3	Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.

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4	Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	Other policies: The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration

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