

 Knowledge UNIVERSITY	Kurdistan Region – Iraq Ministry of Higher Education and Scientific Research Knowledge University	
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MODULE DESCRIPTOR FORM

Module Information			
Course Module Title	IMMUNOLOGY		
ناونیشانی مۆدیول	بەرگری لەش		
عنوان الوحدة	علم المناعة		
Course Module Type	Core	Module Code	PPT632
ECTS Credits	5	Module Level	2 ND YEAR
Semester of Delivery	1 st and 2 nd	Dept. Code	PP
College (Code)	PP		
Module Website (CMW)	Knu.edu.iq/sms		
Module Leader (ML)	Mustafa AbdulMonam Zainel	e-mail	mustafa.zainel@knu.edu.iq
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Peer Review Name		e-mail	
Reviewer Committee Approval		Version Number	

Relation With Other Modules

Pre-requisites	
Co-requisites	
Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1. The aim of the immunology module is to provide students with a comprehensive understanding of the immune system, its components, functions, and regulatory mechanisms. 2. Through theoretical knowledge and practical applications, students will develop an appreciation for the role of immunology in health and disease, as well as its significance in medical research and clinical practice.
Module Learning Outcomes	Student learning outcome: By the end of the course, the students should be able: ▪ Demonstrate a thorough understanding of the basic principles and components of the immune system. ▪ Explain the mechanisms of immune response to various pathogens, antigens, and foreign substances. ▪ Analyze the role of immunological processes in maintaining homeostasis and defending against infections and diseases. ▪ Evaluate the implications of immunological dysfunction in the development and progression of autoimmune disorders, allergies, and immunodeficiency diseases. ▪ Apply immunological concepts and techniques in laboratory settings for diagnostic, therapeutic, and research purposes. ▪ Critically assess current advances and controversies in immunology research, including emerging therapies and technologies.
Indicative Contents	Introduction to Immunology: Historical perspectives Basic terminology and concepts Overview of the immune system's organization and components Innate Immunity: Cellular and molecular components Recognition and response mechanisms Inflammatory processes and cytokine signaling

	Adaptive Immunity: Antigen recognition and processing T-cell and B-cell activation and differentiation Antibody-mediated and cell-mediated immune responses Immunological Memory and Regulation: Memory cell formation and maintenance Regulatory T cells and immune tolerance Immunological checkpoints and regulation of immune responses Immunopathology and Disease: Autoimmunity and autoimmune diseases Hypersensitivity reactions and allergies Immunodeficiency disorders and immune system dysfunctions Immunological Techniques and Applications: Serological assays (ELISA, Western blotting) Flow cytometry and cell sorting Immunohistochemistry and immunofluorescence Immunotherapy approaches and vaccines Advanced Topics in Immunology: Immunogenetics and polymorphisms Immune evasion strategies of pathogens Immunological aspects of cancer and transplantation Cutting-edge research and therapeutic interventions in immunology Ethical and Societal Considerations: Ethical issues in immunology research and clinical practice Societal implications of immunological discoveries and interventions Global health perspectives on immunization and infectious diseases
Learning and Teaching Strategies	
Strategies	1. Lectures: Traditional lectures can provide an overview of key concepts, theories, and principles in immunology. Lectures can be enhanced with multimedia presentations, diagrams, and demonstrations to help students visualize complex processes. 2. Interactive Discussions: Facilitate discussions where students can ask questions, share ideas, and engage in debates about immunological concepts. This can encourage critical thinking and deepen understanding. 3. Case Studies: Presenting real-life case studies related to immunological disorders or medical interventions can help students understand the practical implications of immunological principles. Students can analyze the cases, propose hypotheses, and discuss potential treatments. 4. Problem-Based Learning (PBL): PBL involves presenting students with a

	problem or scenario related to immunology and guiding them through the process of researching, analyzing, and solving the problem collaboratively. This promotes independent learning and critical thinking skills. Group Projects: Assign group projects that require students to research specific topics in immunology, collaborate with peers, and present their findings to the class. This encourages teamwork, communication skills, and in-depth exploration of particular areas of interest. Online Resources: Utilize online platforms, interactive simulations, virtual labs, and multimedia resources to supplement classroom teaching and provide additional opportunities for self-directed learning. Peer Teaching: Encourage students to teach each other through peer-led tutorials, presentations, or study groups. This not only reinforces their own understanding but also promotes communication and teamwork skills. Formative Assessment: Provide regular formative assessments such as quizzes, concept maps, or short assignments to gauge students' understanding and identify areas where additional support may be needed. Feedback and Reflection: Offer constructive feedback on students' performance and encourage them to reflect on their learning process. This can help students identify strengths and weaknesses, set goals for improvement, and develop metacognitive skills. Clinical Exposure: Arrange visits to clinical settings or invite guest speakers from the healthcare field to discuss real-world applications of immunology concepts and inspire students' interest in related careers.
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Module Delivery	
Structured workload (h/w)	2h/w
Unstructured workload (h/w)	8.8h/w
Total workload (h/w)	10.8h/w

Module Evaluation				
	Number/Time	Weight (Marks)	Week Due	Relevant Learning Outcome
Quiz	3 hr	5%	15	
Attendance	3 hr	5%	15	
Report	2.8 hr	5%	15	
Project/Lab.	2 hr	5%	15	
Midterm Exam	1hr	30%	15	
Final Exam	2 hr	50%	15	
Total	100% (100 Marks)			

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Clinical Immunology: Principles and Practice" by Robert Rich, Thomas Fleisher, William Shearer, Harry Schroeder, and Anthony Frew	
Recommended Texts	Here are some recommended textbooks for studying immunology: 1. "Kuby Immunology" by Judy Owen, Jenni Punt, and Sharon Stranford - This comprehensive textbook covers all aspects of immunology, from basic concepts to clinical applications, in a clear and accessible manner. 2. "Janeway's Immunobiology" by Kenneth Murphy, Casey Weaver, and Allan Mowat - Widely used in undergraduate and graduate immunology courses, this book provides a thorough understanding of the immune system and its functions. 3. "Basic Immunology: Functions and Disorders of the Immune System" by Abul Abbas, Andrew Lichtman, and Shiv Pillai - This book offers a concise yet detailed overview of immunology, with a focus on the principles underlying immune responses and immune-related disorders. 4. "Immunology" by David Male, Jonathan Brostoff, David Roth, and Ivan Roitt - Known for its clinical relevance and clear explanations, this textbook covers both basic and advanced topics in immunology, making it suitable for students at various levels. 5. "Cellular and Molecular Immunology" by Abul Abbas, Andrew Lichtman, and Shiv Pillai - This book delves into the cellular and molecular mechanisms underlying immune responses, making it an excellent resource for those interested in the molecular aspects of immunology. 6. "How the Immune System Works" by Lauren Sompayrac - Written in a concise and engaging style, this book provides a beginner-friendly	

	introduction to immunology, making it ideal for students who are new to the subject. 7. "Clinical Immunology: Principles and Practice" by Robert Rich, Thomas Fleisher, William Shearer, Harry Schroeder, and Anthony Frew - This comprehensive textbook covers both basic immunology concepts and their clinical applications, making it suitable for medical students and healthcare professionals.	
Websites		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to Immunology: Historical perspectives Basic terminology and concepts Overview of the immune system's organization and components
Week 2	Innate Immunity: Cellular and molecular components Recognition and response mechanisms Inflammatory processes and cytokine signaling
Week 3	Adaptive Immunity: Antigen recognition and processing T-cell and B-cell activation and differentiation Antibody-mediated and cell-mediated immune responses
Week 4	Immunological Memory and Regulation: Memory cell formation and maintenance Regulatory T cells and immune tolerance Immunological checkpoints and regulation of immune responses
Week 5	Immunopathology and Disease: Autoimmunity and autoimmune diseases Hypersensitivity reactions and allergies Immunodeficiency disorders and immune system dysfunctions

Week 6	Immunological Techniques and Applications: Serological assays (ELISA, Western blotting) Flow cytometry and cell sorting Immunohistochemistry and immunofluorescence Immunotherapy approaches and vaccines
Week 7	Mid-Term Exam
Week 8	Advanced Topics in Immunology: Immunogenetics and polymorphisms Immune evasion strategies of pathogens Immunological aspects of cancer and transplantation Cutting-edge research and therapeutic interventions in immunology
Week 9	Ethical and Societal Considerations: Ethical issues in immunology research and clinical practice Societal implications of immunological discoveries and interventions Global health perspectives on immunization and infectious diseases
Week 10	Final Examination

APPENDIX:

KNOWLEDGE UNIVERSITY					
GRADING SCHEME					
Group	ECTS Grade	% of Marks	Definition	IRQ System	GPA
Success Group (50-100)	A - Excellent	Best 10%	Outstanding Performance	90-100	5
	B - Very Good	Next 25%	Above average with some errors	80-89	4

	C - Good	Next 30%	Sound work with notable errors	70- 79	3
	D - Satisfactory	Next 25%	Fair but with major shortcomings	60-69	2
	E - Sufficient	Next 10%	Work meets minimum criteria	50-59	1
Fail Group (0–49)	FX – Fail	(45-49)	More work required but credit awarded	40-49	
	F – Fail	(0-44)	Considerable amount of work required	0-44	

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. KNU has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.