

Republic of Yemen

Ministry of Higher Education & Information Technology

Emirates International University



Faculty of Medical Sciences

Department of Clinical Pharmacy

Bachelor of Pharm D

**Course Specification of Principles of Pathophysiology Module
I: Immunology Course No. (PP 501)**

Prepared by:

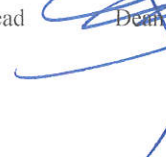
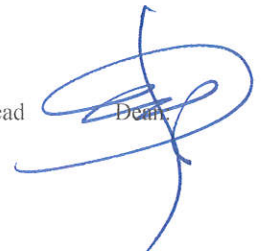
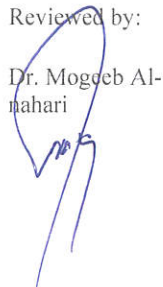
Dr. Ali Al-yahawi

Reviewed by:

Dr. Moggeb Al-nahari

Head of the Department: Quality Assurance head

Dean



I. Course Identification and General Information:

1	Course Title:	Principles of Pathophysiology Module I: Immunology			
2	Course Code & Number:	PP 501			
3	Credit Hours:	Credit Hours	Theory Hours		Lab. Hours
			Lecture	Exercise	
		2	2	--	--
4	Study Level/ Semester at which this Course is offered:	5 th Level / 1 st Semester			
5	Pre –Requisite (if any):	Pharmacology I-III			
6	Co –Requisite (if any):	None			
7	Program (s) in which the Course is Offered:	Bachelor of Pharm D			
8	Language of Teaching the Course:	English			
9	Study System:	Semester based System			
10	Mode of Delivery:	Full Time			
11	Location of Teaching the Course:	Faculty of Medical Sciences			
12	Prepared by:	Dr. Dr. Mogeab Al-nahari			
13	Date of Approval:				

II. Course Description:

The course provide the students with the pathophysiology of various immune-related disorders, including autoimmune diseases, hypersensitivity reactions, and immunodeficiency disorders.

Throughout the course, students will also gain insight into the interplay between the immune system and other systems of the body, The course may include interactive learning activities, case studies, and laboratory exercises to reinforce the understanding of key concepts and their application in clinical settings. By the end of the course, students will be able to recognize and

evaluate immunological disorders, apply appropriate therapeutic interventions, and contribute to the overall management of patients with immune-related diseases.

III. Course Intended Learning Outcomes (CILOs) : (maximum 8) Upon successful completion of the course, students will be able to:		Referenced PILOs Learning out of program	
A. Knowledge and Understanding:		I, A or E	
a1	Identify the principles of immunology and the interplay between the immune system and pharmacotherapeutic interventions, including the mechanisms of action of immunomodulatory medications.	I	A1,A2
a2	Discuss the pharmacotherapy in the context of immunological disorders.	I	A3
B. Intellectual Skills:			
b1	Compare the benefits and potential adverse effects of immunomodulatory medications,	A	B2
b2	evaluate the pharmacotherapy of various immunological disorders, including autoimmune diseases, immunodeficiencies, and hypersensitivity reactions, and the ability to apply this understanding to clinical practice.	A	B4
C. Professional and Practical Skills:			
		A	
		A	
D. Transferable Skills:			
d1	implement effective pharmacotherapeutic strategies for immune-related conditions.	E	D5
d2	Effective utilization of knowledge in immunology and pharmacotherapy to contribute to evidence-based decision-making, patient care, and advancements in	E	D1, D3

	pharmaceutical treatment of immunological disorders.		
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(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:

	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
a1	Identify the principles of immunology and the interplay between the immune system and pharmacotherapeutic interventions, including the mechanisms of action of immunomodulatory medications.	<ul style="list-style-type: none"> - Lectures - Assignment - Interactive discussion - Seminars - Case discussion Office hour 	Exam Assignment <ul style="list-style-type: none"> ▪ Quiz
a2	Discuss the pharmacotherapy in the context of immunological disorders.	<ul style="list-style-type: none"> - Lectures - Assignment - Interactive discussion - Seminars - Case discussion ▪ Office hour 	Exam Assignment <ul style="list-style-type: none"> ▪ Quiz

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

	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
b1	Compare the benefits and potential adverse effects of immunomodulatory medications,	<ul style="list-style-type: none"> - Lectures - Assignment - Interactive discussion - Seminars - Case discussion ▪ Office hour 	Exam Assignment Quiz <ul style="list-style-type: none"> ▪
b2	evaluate the pharmacotherapy of various immunological disorders, including autoimmune diseases, immunodeficiencies, and hypersensitivity reactions, and the ability to apply this	<ul style="list-style-type: none"> - Lectures - Assignment - Interactive discussion - Seminars - Case discussion ▪ Office hour 	Exam Assignment Quiz <ul style="list-style-type: none"> ▪



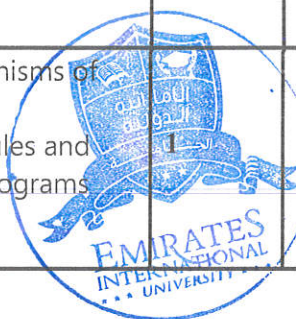
	understanding to clinical practice.		
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
		▪	▪
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
d1	implement effective pharmacotherapeutic strategies for immune-related conditions.	<ul style="list-style-type: none"> - Interactive discussion - Seminars ▪ Case discussion 	Exam Assignment Quiz ▪
d2	Effective utilization of knowledge in immunology and pharmacotherapy to contribute to evidence-based decision-making, patient care, and advancements in pharmaceutical treatment of immunological disorders.	<ul style="list-style-type: none"> - Seminars ▪ Case discussion 	<ul style="list-style-type: none"> ▪ Oral Presentation

IV. Course Contents:

A. Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes
1.	Introduction to Immunology and Pharmacotherapy	Overview of the immune system and its functions - Introduction to pharmacotherapy and its	2	2	a1,a2,b1,b2

		role in modulating immune responses			
2.	Disorders of the Immune System -	Autoimmune disorders and their treatment - Immunodeficiency disorders and their management	1	2	a1,a2,b1,b2
3.	Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) -	Mechanism of action of NSAIDs - Pharmacokinetics and therapeutic uses of NSAIDs in immunological disorders	1	2	a1,a2,b1,b2
4.	Corticosteroids -	Mechanism of action of corticosteroids - Pharmacokinetics and therapeutic uses of corticosteroids in immunological disorders	1	2	a1,a2,b1,b2,d1,d2
5.	Immunomodulatory Drugs -	Disease-modifying antirheumatic drugs (DMARDs) - Biological response modifiers (BRMs) and their therapeutic uses	1	2	a1,a2,b1,b2,d1,d2
6.	Antineoplastic Drugs -	Chemotherapy agents used for immunologically-related malignancies - Side effects and management of chemotherapy-induced immunosuppression	1	2	a1,a2,b1,b2,d1,d2
7.	Vaccination and Immunization - Types of vaccines	and their mechanisms of action - Vaccine schedules and immunization programs	1	2	a1,a2,b1,b2,d1,d2



8.	Midterm			2	a1,a2,b1,b2,d1,d2
9.	Monoclonal Antibodies -	Development and therapeutic uses of monoclonal antibodies in immunotherapy - Safety and efficacy considerations of monoclonal antibody treatment	1	2	a1,a2,b1,b2,d1,d2
10.	Antiviral Drugs -	Mechanism of action of antiviral drugs - Treatment strategies for viral infections, including HIV/AIDS	1	2	a1,a2,b1,b2,d1,d2
11.	Antimicrobial Drugs -	Antibiotics used to treat bacterial infections in immunocompromised patients - Antifungal and antiparasitic drugs for immunologically-mediated infections	1	2	a1,a2,b1,b2,d1,d2
12.	Immunosuppressants -	Mechanism of action of immunosuppressant drugs - Use of immunosuppressants in transplantation and treatment of autoimmune diseases	1	2	a1,a2,b1,b2,d1,d2
13.	Biologic Therapies -	Cell-based therapies, such as stem cell transplantation and adoptive immunotherapy - Emerging biologic therapies for immunological disorders	1	2	a1,a2,b1,b2,d1,d2
14.	Allergy and Asthma Medications -	Pharmacotherapy for allergic reactions and asthma	1	2	a1,a2,b1,b2,d1,d2

		- Management of hypersensitivity reactions and anaphylaxis			
15.	Patient Counseling and Adherence	Guidelines for patient education on immunotherapy and medication use - Strategies to promote medication adherence and mitigate drug-related side effects	1	2	a1,a2,b1,b2,d1,d2
16.	Final exam		1	2	a1,a2,b1,b2,d1,d2
Number of Weeks /and Units Per Semester				16	32

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Week Due	Contact Hours	Learning Outcomes (CILOs)
1	- None			
2	-			
3	-			
4	-			
5	-			
6	-			
7	-			
8	-			
9	-			



No.	Tasks/ Experiments	Week Due	Contact Hours	Learning Outcomes (CILOs)
10	-			
11	-			
12	-			
Number of Weeks /and Units Per Semester: 12 weeks				

C. Tutorial Aspect: (ان وجدت)

No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
Number of Weeks /and Units Per Semester				

V. Teaching Strategies of the Course:

- Lectures
- Assignment
- Interactive discussion
- Seminars
- Case discussion
- Office hour



VI. Assessment Methods of the Course:

- Assignments
- Exam
- Quiz

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	Assignment 1: Each student presents of Monoclonal Antibodies therapy	6th	10	a 1, a2, b1, b2, d1,, d2,
Total				10

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignments	6th,	10	10%	a 1, a2, b1, b2, c1,, d1
2	Quiz 1	6 th	5	5%	a 1, a2, b1, b2, c1 , d2
3	Midterm Exam (Theory)	Week 8	20	20%	a 1, a2, b1, b2, c1,d2
4	Quiz 2	12 th	5	5%	a 1, a2, b1, b2, c1, , d2
5	Final Exam (Theory)	Week 16	60	60%	a 1, a2, b1, b2, c1, d1,d2
Total			100	100%	

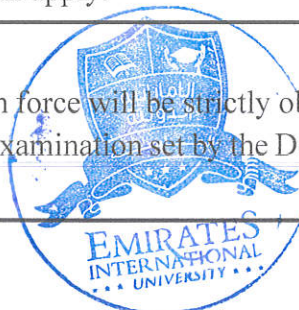
IX. Learning Resources:

1- Required Textbook(s):

1. Satoskar, R. S., and S. D. Bhandarkar. 2020. Pharmacology and pharmacotherapeutics. Elsevier India.
2. Mathias, Clinton B., Jeremy P. McAleer, and Doreen E. Szollosi, eds. *Pharmacology of immunotherapeutic drugs*. Springer, 2020
3. Mohanty SK. and Leela SK., 2014. Text Book of Immunology, 2ed Edition, Jaypee Brothers Medical Publishers Ltd, New Delhi, London.

	4. Thao Doan MD, Melvold R, Hervey RA and Champe PC.,2004, Lippencot's Illustrated Reviews: Immunology.
2- Essential References.	
	1 -DiPiro et al, 11th edition, 2020. Pharmacotherapy: A Pathophysiological Approach, ed. 11th ed 2. Shen, Wei-Chiang, and Stan G. Louie. <i>Immunology for pharmacy students</i> . Routledge, 2019.
3- Electronic Materials and Web Sites etc.	
	1 - www.accesspharmacy.com 2 -Disease management guidelines (specified in lecture notes)

X. Course Policies: (Based on the Uniform Students' By law (2007))	
	Class Attendance:
1	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.
	Tardiness:
2	A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
	Exam Attendance/Punctuality:
3	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.
	Assignments & Projects:
4	Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
	Cheating:
5	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.
	Forgery and Impersonation:
6	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.
	Other policies:
7	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.



Faculty of Medical Sciences

Department of Pharmacy

Bachelor of Pharm D

Course Specification of Principles of Pathophysiology Module I: Immunology Course No. (PP 501)



I. Information about Faculty Member Responsible for the Course:

Name of Faculty Member:		Office Hours					
Location & Telephone No.:							
E-mail:		SAT	SUN	MON	TUE	WED	THU

II. Course Identification and General Information:

1	Course Title:	Principles of Pathophysiology Module I: Immunology			
2	Course Code & Number:	PP 501			
3	Credit Hours:	Credit Hours	Theory Hours		Lab. Hours
			Lecture	Exercise	
		2	2	--	--
4	Study Level/ Semester at which this Course is offered:	5th Level / 1st Semester			
5	Pre -Requisite (if any):	Pharmacology I-III			
6	Co -Requisite (if any):	None			
7	Program (s) in which the Course is Offered:	Bachelor of Pharm D			
8	Language of Teaching the Course:	English			
9	Study System:	Semester based System			
10	Mode of Delivery:	Full Time			
11	Location of Teaching the Course:	Faculty of Medical Sciences			
12	Prepared by:	Dr. Dr. Mogeab Al-nahari			
13	Date of Approval:				

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IV. Course Intended Learning Outcomes (CILOs) :

Upon successful completion of the Course, student will be able to:

	A. Knowledge and Understanding:
a1	Identify the principles of immunology and the interplay between the immune system and pharmacotherapeutic interventions, including the mechanisms of action of immunomodulatory medications.
a2	Discuss the pharmacotherapy in the context of immunological disorders.
	B. Intellectual Skills:
b1	Compare the benefits and potential adverse effects of immunomodulatory medications,
b2	evaluate the pharmacotherapy of various immunological disorders, including autoimmune diseases, immunodeficiencies, and hypersensitivity reactions, and the ability to apply this understanding to clinical practice.
	C. Professional and Practical Skills:
	D. Transferable Skills:
d1	implement effective pharmacotherapeutic strategies for immune-related conditions.
d2	Effective utilization of knowledge in immunology and pharmacotherapy to contribute to evidence-based decision-making, patient care, and advancements in pharmaceutical treatment of immunological disorders.



V. Course Contents:

A. Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
1	Introduction to Immunology and Pharmacotherapy -	Overview of the immune system and its functions - Introduction to pharmacotherapy and its role in modulating immune responses	1	2
2	Disorders of the Immune System -	Autoimmune disorders and their treatment - Immunodeficiency disorders and their management	1	2
3	Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) -	Mechanism of action of NSAIDs - Pharmacokinetics and therapeutic uses of NSAIDs in immunological disorders	1	2
4	Corticosteroids -	Mechanism of action of corticosteroids - Pharmacokinetics and therapeutic uses of corticosteroids in immunological disorders	1	2
5	Immunomodulatory Drugs -	Disease-modifying antirheumatic drugs (DMARDs) - Biological response modifiers (BRMs) and their therapeutic uses	1	2
6	Antineoplastic Drugs -	Chemotherapy agents used for immunologically-related malignancies	1	2

		- Side effects and management of chemotherapy-induced immunosuppression		
7	Vaccination and Immunization - Types of vaccines	and their mechanisms of action - Vaccine schedules and immunization programs	1	2
8	Midterm			2
9	Monoclonal Antibodies -	Development and therapeutic uses of monoclonal antibodies in immunotherapy - Safety and efficacy considerations of monoclonal antibody treatment	1	2
10	Antiviral Drugs -	Mechanism of action of antiviral drugs - Treatment strategies for viral infections, including HIV/AIDS	1	2
11	Antimicrobial Drugs -	Antibiotics used to treat bacterial infections in immunocompromised patients - Antifungal and antiparasitic drugs for immunologically-mediated infections	1	2
12	Immunosuppressants -	Mechanism of action of immunosuppressant drugs - Use of immunosuppressants in transplantation and treatment of autoimmune diseases	1	2
13	Biologic Therapies -	Cell-based therapies, such as stem cell transplantation and adoptive immunotherapy - Emerging biologic therapies for immunological disorders	1	2
14	Allergy and Asthma Medications -	Pharmacotherapy for allergic reactions and asthma	1	2

		- Management of hypersensitivity reactions and anaphylaxis		
15	Patient Counseling and Adherence	Guidelines for patient education on immunotherapy and medication use - Strategies to promote medication adherence and mitigate drug-related side effects	1	2
16	Final exam		1	2
Number of Weeks /and Units Per Semester				16

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Week Due	Contact Hours
1	None		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			



No.	Tasks/ Experiments	Week Due	Contact Hours
Number of Weeks /and Units Per Semester: 12 weeks			
No.	Tasks/ Experiments	Week Due	Contact Hours
1	None		
2			
3	-		
4	-		
5	-		
6	-		
7	-		
8	-		
9			
10	-		
11	-		
12	-		
Number of Weeks /and Units Per Semester: 12 weeks	-		

C. Tutorial Aspect:

No.	Tutorial	Number of Weeks	Contact Hours
1			



No.	Tutorial	Number of Weeks	Contact Hours
2			
3			
4			
5			
6			
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VI. Teaching Strategies of the Course:

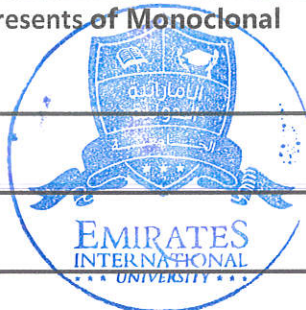
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- Exam
- Quiz

VIII. Assignments:

No.	Assignments	Week Due	Mark
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Total			



IX. Schedule of Assessment Tasks for Students During the Semester:

خطأ! لم يتم العثور على مصدر المرجع.
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