Republic of Yemen

Ministry of Higher Education & Scientific Research

21 September University for Medicals and Applied Sciences

Faculty of Clinical Pharmacy

Bachelor of Clinical Pharmacy & Pharm. D.

Course Specification of

Pharmacology-III

Course Code. (02.03.238)

2022

T4: This Template is Developed and Approved by CAQA-Yemen, 2023

Prepared by:	Reviewed by:	Head of the Department:	Vice Dean for Quality affairs	Dean of College:
Dr. Hassan Al Mahbashi	Dr. Ali Alyahawi	Dr. -----…….	Dr. Abdulelah Thabet	Dr. Ali Alyahawi

I. General Information:

1.	Course Title:	Pharmacology-III				
2.	Course Code:	02.03.238				
3.	Credit Hours:	Credit Hours	Theory Contact Hours		Practical Contact Hours	
			Lecture	Tutorial/ Seminar	Lab	Clinical
		3	2		2	--
4.	Level/ Semester at which this Course is offered:	3rd Level / 2nd Semester				
5.	Pre –Requisite (if any):	Pharmacology 1&2				
6.	Co –Requisite (if any):	-				
7.	Program (s) in which the Course is Offered:	Bachelor of Clinical Pharmacy & Pharm. D.				
8.	Language of Teaching the Course:	English				
9.	Location of Teaching the Course:	Faculty of Clinical Pharmacy				
10.	Prepared by:	Prof. Hassan Al_Mahbashi				
11	Date and Number of Approval by Council:	2022				

II. Course Description:

This course will provide the students with the basic concepts of the drugs used for treatment of diseases that effects central nervous system and respiratory system; regarding their mechanism of action, biotransformation, side effects, and drug drug-interaction. In addition, this course will introduce the students to anticancer, anti- parasite and anti-viral drugs .

III. Course Intended Learning Outcomes (CILOs) : Upon successful completion of the course, students will be able to:		Referenced PILOs	
	A. Knowledge and Understanding:	**I, P or M/A**	
a1	Explain the pharmacokinetics and pharmacodynamics of drugs used in the treatment of diseases that affect CNS, respiratory system, anticancer, antiviral and ant- parasite drugs.		A2
a2	Outline the different groups of drugs used in the treatment of diseases that affect CNS, respiratory system, anticancer, antiviral and ant- parasite drugs.		A5
	B. Intellectual Skills:		
b1	Designs a treatment protocol for various diseases that affect the nervous system and respiratory system.		B4
b2	Compare the different types of medications that are used to treat cancers, parasites, and viruses in terms of their mechanism of action.		B5
	C. Professional and Practical Skills:		
c1	Prepare a seminar denotes mechanism of action and side effects of the drugs used in the treatment of cancers, parasites, and viruses infections.		C4
c2	Recommend to prescribe a right drugs to achieved an optimal efficacy and to avoid drug- interaction and side effects.		C5
	D. Transferable Skills:		
d1	Communicate effectively and work in team.		D1
d2	Apply computerized programs effectively for continues education.		D3
I= Introduced, P=Practiced or M/A= Mastered/Advanced			

(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	Explain the pharmacokinetics and pharmacodynamics of drugs used in the treatment of diseases that affect CNS , respiratory system ,anticancer ,antiviral and ant- parasite drugs.	▪ Lecture ▪ Instructor – student Interactive ▪ Office hour	▪ Exam ▪ Assignment ▪ Quiz
a2	Outline the different groups of drugs used in the treatment of	▪ Lecture ▪ Instructor – student Interactive	▪ Exam ▪ Assignment ▪ Quiz

	diseases that affect CNS , respiratory system ,anticancer ,antiviral and ant- parasite drugs.	▪ Office hour	

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

	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
b1	Designs a treatment protocol for various diseases that affect the nervous system and respiratory system .	▪ Lecture ▪ Instructor – student Interactive ▪ Exercises ▪ Solving Problem Methods	▪ Problem-Solving Exercises. ▪ Assignment ▪ Quiz
b2	Compare the different types of medications that are used to treat cancers, parasites, and viruses in terms of their mechanism of action.	▪ Lecture ▪ Instructor – student Interactive ▪ Exercises ▪ Solving Problem Methods	▪ Problem-Solving Exercises. ▪ Assignment ▪ Quiz

(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
c1	Prepare a seminar denotes mechanism of action and side effects of the drugs used in the treatment of cancers, parasites, and viruses infections .	▪ Lecture ▪ Instructor – student Interactive ▪ Self-Learning	▪ Exam ▪ Assignment ▪ Quiz ▪ Practical Reports
c2	Recommend to prescribe a right drugs to achieved an optimal efficacy and to avoid drug- interaction and side effects	▪ Lecture ▪ Instructor – student Interactive ▪ Self-Learning	▪ Exam ▪ Assignment ▪ Quiz

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

	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
d1	Communicate effectively and work in team .	▪ Self-Learning ▪ Seminar ▪ Exercises	▪ Presentation ▪ Assignment ▪ Quiz
d2	Apply computerized programs effectively for continues education	▪ Seminar ▪ Instructor–student Interactive ▪ Exercises	▪ Presentation

IV. Course Contents:

A. Theoretical Aspect:

Order	Units/Topics List	Learning Outcomes	Sub Topics List	Number of Weeks	Contact Hours
1	**Pharmacology of Central Nervous system**	a1, a2, b1, b2, c1, c2, d1, d2	- Antiepileptic	1	12
			- Sedative and hypnotics - Antipsychotic and antischizophrenic drugs	1	
			- Antidepressants	1	
			- Anti-parkinson's - Alzheimer - Local and general anesthesia	2	
			- Central analgesic (opioid)	1	
2	**Midterm exam**	a1, a2, b1, b2, c1, c2, d1, d2	- 7th	1	2
3	**Pharmacology of respiratory system**	a1, a2, b1, b2, c1, c2, d1, d2	Anti -asthmatic drugs Anti -cough drugs Anti tuberculosis	**2**	**4**
4	**Antiviral Drugs**	a1, a2, b1, b2, c1, c2, d1, d2	- **Anti-Herpes virus** - **Anti-Influenza virus** - **Anti-Hepatitis virus/Nonselective antiviral drugs** - **Anti-Retrovirus**	2	4
5	**Anti-parasites drugs**	a1, a2, b1, b2, c1, c2, d1, d2	- **Antimalarial Drugs** - **Anti-Leishmania drugs**	1	2
6	**Anticancer Drugs**	a1, a2, b1, b2, c1, c2, d1, d2		**2**	**4**
7	**Antileprotic Drugs**	a1, a2, b1, b2, c1, c2, d1, d2	**Antileprotic Drugs**	**1**	**2**
8	**Final exam**	a1, a2, b1, b2, c1, c2		**1**	**2**
Number of Weeks /and Units Per Semester				**16**	**32**

B- Practical Aspect: Pharmacology-III

No.	Tasks/ Experiments	Learning Outcomes	Number of Weeks	Contact Hours
1.	Demonstration of the effects of drugs on the blood pressure in an anesthetized rat.	a1,a2,b1,c1,c2	1	2
2.	Record the effects of drugs on the blood pressure and electrocardiogram of an anesthetized rat.	a1,a2,b1,c1,c2	1	2
3.	Demonstration of isolated frog heart preparation	a1,a2, c1,c2	1	2
4.	Effect of different ions on isolated frog heart preparation	c1,c2	1	2
5.	Effect of Adrenaline and propranolol on isolated frog heart preparation	c1,c2	1	2
6.	Effect of Ach and atropine on isolated frog heart preparation	c1,c2	1	2
7.	**Midterm exam**	a1,a2,b1,c1,c2	1	2
8.	Determination of bleeding time and clotting time	c1,c2	1	2
9.	To study the CNS stimulant activity of some drugs	a1,c1,c2	2	4
10.	To study the hypnotic activity by using pentobarbital induce loss of righting reflex in mice	a1,a2, c1,c2	1	2
11.	To study the Anticonvulsant activity of some drugs in mice	c1,c2	1	2
12.	Use of computer simulated CDs or Video cassettes for pharmacology practical whenever possible.	a1,a2,b2,c1,c2	1	2
13.	**Final exam**	a1,a2,b2,c1,c2	1	2
Number of Weeks /and Units Per Semester			**14**	**28**

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	**Assignment 1homework**	4th	2.5	a1, a2, b1, b2, c1, c2, d1, d2
2	**Assignment 2:** problem solve	9th	2.5	a1, a2, b1, b2, c1, c2, d1, d2
Total				**5**

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	4th, 9th	5	5%	a1, a2, b1, b2, c1, c2, d1, d2
2	Quiz 1	6th	2.5	2.5%	a1, a2, b1, b2, c1, c2, d1, d2
3	Practical Reports	2nd -13th	2.5	2.5%	a1, a2, b1, b2, c1, c2, d1
4	Midterm Exam (Theory)	Week 7	15	15%	a1, a2, b1, b2, c1, c2, d1, d2
5	Midterm Exam (Practical)	Week 7	10	10%	a1, a2, b1, b2, c1, c2, d1, d2
6	Final Practical Exam	14th	15	15%	a1, a2, b1, b2, c1, c2
7	Final Exam (Theory)	Week 16	50	50%	a1, a2, b1, b2, c1, c2
Total			100	100%	

IX. Learning Resources:

1- Required Textbook(s):

1- Required Textbook(s) Lippincott's Illustrated Review of Pharmacology; 7th ed.; Richard A Harvey & Pamela C Champe; Lippincott's Williams & Wilkins;2018.

2- Essential References.

1 -Basic and clinical pharmacology; 15th edition; Bertram G. Katzung; McGraw Hill Medical Company; 2020.

3- Electronic Materials and Web Sites *etc*.

1. https://pubmed.ncbi.nlm.nih.gov/

X. Course Policies: (Based on the Uniform Students' By law (2007)

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:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
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.
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.

Faculty of Clinical Pharmacy

Bachelor of Clinical Pharmacy & Pharm. D.

Course Plan (Syllabus) of

Pharmacology 3

Course Code. 02.03.238

I. Information about Faculty Member Responsible for the Course:							
Name of Faculty Member:	Dr. Hassan Al Mahbashi	**Office Hours**					
Location& Telephone No.:							
E-mail:		SAT	SUN	MON	TUE	WED	THU

2022- 2023

II. Course Identification and General Information:

1.	**Course Title:**	Pharmacology 3				
2.	**Course Code:**	02.03.238				
3.	**Credit Hours:**	**Credit Hours**	**Theory Contact Hours**		**Practical Contact Hours**	
			Lecture	**Tutorial /Seminar**	**Lab**	**Clinical**
		3	2		2	--
4.	**Level/ Semester at which this Course is offered:**	**3rd Level / 2nd Semester**				
5.	**Pre –Requisite (if any):**	Pharmacology 1&2				
6.	**Co –Requisite (if any):**	-				
7.	**Program (s) in which the Course is Offered:**	Bachelor of Clinical Pharmacy & Pharm. D.				
8.	**Language of Teaching the Course:**	English				
9.	**Location of Teaching the Course:**	Faculty of Clinical Pharmacy				
10.	**Prepared by:**	Prof. Hassan Al_Mahbashi				
11	**Date and Number of Approval by Council:**					

III. Course Description:

This course will provide the students with the basic concepts of the drugs used for treatment of diseases that effects central nervous system and respiratory system; regarding their mechanism of action, biotransformation, side effects, and drug drug-interaction. In addition, this course will introduce the students to anticancer, anti- parasite and anti-viral drugs .

IV. Course Intended Learning Outcomes (CILOs) :

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

	A. Knowledge and Understanding:
a1	Explain the pharmacokinetics and pharmacodynamics of drugs used in the treatment of diseases that affect CNS, respiratory system, anticancer ,antiviral and ant- parasite drugs.
a2	Outline the different groups of drugs used in the treatment of diseases that affect CNS, respiratory system ,anticancer ,antiviral and ant- parasite drugs.
	B. Intellectual Skills:
b1	Designs a treatment protocol for various diseases that affect the nervous system and respiratory system .
b2	Compare the different types of medications that are used to treat cancers, parasites, and viruses in terms of their mechanism of action.
	C. Professional and Practical Skills:
c1	Prepare a seminar denotes mechanism of action and side effects of the drugs used in the treatment of cancers, parasites, and viruses infections .
c2	Recommend to prescribe a right drugs to achieved an optimal efficacy and to avoid drug- interaction and side effects .
	D. Transferable Skills:
d1	Communicate effectively and work in team.
d2	Apply computerized programs effectively for continues education.

V. Course Contents:

A. Theoretical Aspect:

خطأ! لم يتم العثور على مصدر المرجع.

Order	Units/Topics List	Learning Outcomes	Sub Topics List	Number of Weeks	Contact Hours
1	**Pharmacology of Central Nervous system**	a1, a2, b1, b2, c1, c2, d1, d2	- Antiepileptic	1	12
			- Sedative and hypnotics - Antipsychotic and antischizophrenic drugs	1	
			- Antidepressants	1	

			- Anti-parkinson's - Alzheimer - Local and general anesthesia	2	
			- Central analgesic (opioid)	1	
2	**Mid term exam**	a1, a2, b1, b2, c1, c2, d1, d2	- 7th	1	2
3	**Pharmacology of respiratory system**	a1, a2, b1, b2, c1, c2, d1, d2	Anti -asthmatic drugs Anti -cough drugs Anti tuberculosis	**2**	**4**
4	**Antiviral Drugs**	a1, a2, b1, b2, c1, c2, d1, d2	- **Anti-Herpes virus** - **Anti-Influenza virus** - **Anti-Hepatitis virus/Nonselective antiviral drugs** - **Anti-Retrovirus**	2	4
5	**Anti-parasites drugs**	a1, a2, b1, b2, c1, c2, d1, d2	- **Antimalarial Drugs** - **Anti-Leishmania drugs**	1	2
6	**Anticancer Drugs**	a1, a2, b1, b2, c1, c2, d1, d2		**2**	**4**
7	**Antileprotic Drugs**	a1, a2, b1, b2, c1, c2, d1, d2	**Antileprotic Drugs**	**1**	**2**
8	**Final exam**	a1, a2, b1, b2, c1, c2		**1**	**2**
Number of Weeks /and Units Per Semester				**16**	**32**

B- Practical Aspect: Pharmacology-III

No.	Tasks/ Experiments	Learning Outcomes	Number of Weeks	Contact Hours
1.	Demonstration of the effects of drugs on the blood pressure in an anesthetized rat.	a1,a2,b1,c1,c2	**1**	**2**
2.	Record the effects of drugs on the blood pressure and electrocardiogram of an anesthetized rat.	a1,a2,b1,c1,c2	**1**	**2**
3.	Demonstration of isolated frog heart preparation	a1,a2, c1,c2	**1**	**2**
4.	Effect of different ions on isolated frog heart preparation	c1,c2	**1**	**2**

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13.	**Final exam**	a1,a2,b2,c1,c2	1	2
Number of Weeks /and Units Per Semester			**14**	**28**

VI. Teaching Strategies of the Course:

- Lecture
- Instructor – student Interactive
- Exercises
- Presentation
- Office hours
- Seminar
- Assignment
- Self-Learning

VII. Assessment Methods of the Course:

- Assignments
- Quiz
- Exam
- Oral Presentation
- Practical Reports

VIII. Assignments:

No.	Assignments	Week Due	Mark

No.	Assignments	Week Due	Mark
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Total			

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