

STUDY GUIDE

Medical Pharmacology Core Course

1208213



Course coordination

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Course Identification

1. Credit hours	3
2. Level/year at which this course is offered	Level 4/second year
3. Pre-requisites for this course	Pass 1 st year

Course committee members

1. Prof. Dr. Muhammad Jan Shamsur Rahman
2. Elhassan Hussein Eltom
3. Rahma Hamayun

Actual Learning Hours

No	Activity	Learning Hours
Contact Hours		
1	Lecture	30
2	Laboratory/Studio	11
3	Tutorial	
4	Others (specify)	
	Total	41
Other Learning Hours*		

Course Objectives

1. Course Description

During this course, the student will be familiar with different groups of medications, their indications, pharmacodynamics, pharmacokinetic, drug interactions, adverse drug reactions, contraindications and percussions; thereby the student will utilize the basic science literature of pharmacology to be able to prescribe medications rationally, communicate to the patients effectively, promotes the concept of compliance, counsel the patient about their medication use, and participate in patient and community education.

2. Course Main Objective

By the end of this course the students are able to:

1. Understand the scope of various branches of Pharmacology
2. Recognize the basic principles of pharmacokinetics and pharmacodynamics of drugs (including absorption, distribution, metabolism, excretion, elimination half-life, and bioavailability, how drugs produce their action, receptors, drug-receptor interactions, dose-response curve relationships, potency and efficacy of drugs, etc.)
3. Recall the scientific names of drugs and drug groups used in the treatment of important diseases of various body systems.
4. Acquire cognitive, motor, and communication skills that are necessary throughout the clinical career for rational therapeutics.
5. Explain the effect of an unknown autonomies drugs in different isolated animal tissues.

Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge:	
1.1	Recognize the basic principles of pharmacokinetics and pharmacodynamics of drugs, gene therapy, pharmacogenomics and drugs interaction	K1
1.2	Define various drugs targeting the autonomic nervous system and autacid receptors, and antimicrobial drugs and their action.	K1
1.3	Understand the safety issue related to medication errors	K2
2	Skills :	
2.1	Identify the different pharmaceutical dosage forms and routes of drug	S2

CLOs		Aligned PLOs
	administration and their effect in different isolated animal tissues.	
2.2	Demonstrate the core skills of writing for appropriate prescription and assignments.	S5
3	Values:	
3.1	Employ the skill of self-learning through updated medical information from different approved sources	V2

Course Content

No	List of Topics	Contact Hours
A: lectures		
1	Introduction to pharmacology	1
2	Basic principles of pharmacodynamics- I	1
3	Basic principles of pharmacodynamics- II	1
4	Basic principles of pharmacokinetics- I	1
5	Basic principles of pharmacokinetics- II	1
6	Introduction to autonomic nervous system	1
7	Cholinergic agonist	1
8	Cholinergic antagonist	1
9	Adrenergic agonist-I	1
10	Adrenergic agonists-II	1
11	Adrenergic antagonists	1
12	Histamine and anti-histamines	1
13	Prostaglandins, their analogs and antagonists	1
14	Serotonin and drug treatment of migraine	1
15	Renin, angiotensin, bradykinin and angiotensin antagonists and anti-serotonin drugs	1
16	General principal of antimicrobial therapy	1
17	Beta-lactams -I	1
18	Beta-lactams –II	1
19	Macrolides and Aminoglycosides	1
20	Tetracyclines, Chloramphenicol and other antibiotics	1
21	Quinolones and Sulfonamides	1
22	Antiviral drugs-I	1
23	Antiviral drugs-II	1

24	Antifungal drugs	1
25	Antimalarial drugs	1
26	Anti-amoebic drugs	1
27	Other Anti-protozoals (Filariasis, Leishmaniasis, etc.)	1
28	Anti-helminthiasis drugs	1
29	Drug interactions	1
30	Gene therapy, pharmacogenomics and teratogenicity	1
B: Practical sessions		
1	Pharmaceutical dosage forms	1
2	Route of administration	1
3	Calculation of pharmacokinetics parameters	1
4	Studying effect of drugs on Rabbit's eye	1
5	Studying effect of drugs on Rabbit's intestine	1
6	Studying effect of drugs on Rabbit's isolated heart	1
7	Studying effect of drugs on Rabbit's blood pressure	1
8	Studying effect of drugs on Rabbit's skeletal muscle	1
9	Prescription writing based on problem based learning-I	1
10	Prescription writing based on problem based learning-II	1
11	Prescription writing based on problem based learning-III	1
Total		41

Teaching strategies and Assessment Methods for Students

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge		
1.1	Recognize the basic principles of pharmacokinetics and pharmacodynamics of drugs, gene therapy, pharmacogenomics and drugs interaction	Direct instruction (Lectures)	Essay questions, MCQs

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.2	Define various drugs targeting the autonomic nervous system and autacoid receptors and their action.	Direct instruction (Lectures)	Essay questions, MCQs
1.3	State the general principles of treating infections, mechanisms of action and drug resistance for various antimicrobials drugs.	Direct instruction (Lectures)	Essay questions, MCQs
2.0	Skills		
2.1	Identify the different pharmaceutical dosage forms and routes of drug administration and their effect in different isolated animal tissues.	Laboratory based strategies (demonstration, direct instruction and cooperation)	OSPE
2.2	Demonstrate the core skills of writing for appropriate prescription and assignments	Laboratory based strategies (demonstration, direct instruction and cooperation) Assignment	OSPE Assignment rubric
3.0	Values:		
3.1	Employ the skill of self-learning through updated medical information from different approved sources	Homework-assignment	Assignment rubric

Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Midterm	5 th	25%
2	Assignment	8 th	15%
3	Final exam	End of semester	40%
4	OSPE	End of semester	20%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

Course blueprint (% of total summative marks in blue print is to be given in the range)

Topics	Teaching strategies	Assessment methods	Knowledge			Skill			Values	% of total contact hours	% of total summative marks
			K1	K2	...	S1	S2	S5			
Lectures									73.17%	65%	
Introduction to pharmacology	Lectures	MCQs, SAQs	K1						2.44%	2-3%	
Basic principles of pharmacodynamics- I	Lectures	MCQs, SAQs	K1						2.44%	2-3%	
Basic principles of pharmacodynamics- II	Lectures	MCQs, SAQs	K1						2.44%	2-3%	
Basic principles of pharmacokinetics- I	Lectures	MCQs, SAQs	K1						2.44%	2-3%	
Basic principles of pharmacokinetics- II	Lectures	MCQs, SAQs	K1						2.44%	2-3%	
Introduction to autonomic nervous system	Lectures	MCQs, SAQs	K1						2.44%	2-3%	
Cholinergic agonist	Lectures	MCQs, SAQs	K1						2.44%	2-3%	
Cholinergic antagonist	Lectures	MCQs, SAQs	K1						2.44%	2-3%	

Topics	Teaching strategies	Assessment methods	Knowledge			Skill			Values	% of total contact hours	% of total summative marks
			K1	K2	...	S1	S2	S5	V2		
Adrenergic agonist-I	Lectures	MCQs, SAQs	K1							2.44%	2-3%
Adrenergic agonists-II	Lectures	MCQs, SAQs	K1							2.44%	2-3%
Adrenergic antagonists	Lectures	MCQs, SAQs	K1							2.44%	2-3%
Histamine and anti-histamines	Lectures	MCQs, SAQs	K1							2.44%	2-3%
Prostaglandins, their analogs and antagonists	Lectures	MCQs, SAQs	K1							2.44%	2-3%
Serotonin and drug treatment of migraine	Lectures	MCQs, SAQs	K1							2.44%	2-3%
Renin, angiotensin, bradykinin and angiotensin antagonists and anti-serotonin drugs	Lectures	MCQs, SAQs	K1							2.44%	2-3%
General principal of antimicrobial therapy	Lectures	MCQs, SAQs	K1	K2						2.44%	2-3%
Beta-lactams -I	Lectures	MCQs, SAQs	K1	K2						2.44%	2-3%
Beta-lactams –II	Lectures	MCQs, SAQs	K1	K2						2.44%	2-3%
Macrolides and Aminoglycosides	Lectures	MCQs, SAQs	K1	K2						2.44%	2-3%
Tetracyclines, Chloramphenicol and other antibiotics	Lectures	MCQs, SAQs	K1	K2						2.44%	2-3%
Quinolones and Sulfonamides	Lectures	MCQs, SAQs	K1	K2						2.44%	2-3%
Antiviral drugs-I	Lectures	MCQs, SAQs	K1	K2						2.44%	2-3%
Antiviral drugs-II	Lectures	MCQs, SAQs	K1	K2						2.44%	2-3%
Antifungal drugs	Lectures	MCQs, SAQs	K1	K2						2.44%	2-3%

Topics	Teaching strategies	Assessment methods	Knowledge			Skill			Values	% of total contact hours	% of total summative marks
			K1	K2	...	S1	S2	S5	V2		
Antimalarial drugs	Lectures	MCQs, SAQs	K1	K2						2.44%	2-3%
Anti-amoebic drugs	Lectures	MCQs, SAQs	K1	K2						2.44%	2-3%
Other Anti-protozoals (Filariasis, Leishmaniasis, etc.)	Lectures	MCQs, SAQs	K1	K2						2.44%	2-3%
Anti-helminthiasis drugs	Lectures	MCQs, SAQs	K1	K2						2.44%	2-3%
Drug interactions	Lectures	MCQs, SAQs	K1	K2						2.44%	2-3%
Gene therapy, pharmacogenomics and teratogenicity	Lectures	MCQs, SAQs	K1	K2						2.44%	2-3%
Practical										26.83%	20%
Pharmaceutical dosage forms	Lab. Based	OSPE				S1				2.44%	1.8%
Route of administration	Lab. Based	OSPE				S1				2.44%	1.8%
Calculation of pharmacokinetics parameters	Lab. Based	OSPE				S1				2.44%	1.8%
Studying effect of drugs on Rabbit's eye	Lab. Based	OSPE				S1				2.44%	1.8%
Studying effect of drugs on Rabbit's intestine	Lab. Based	OSPE				S1				2.44%	1.8%
Studying effect of drugs on Rabbit's isolated heart	Lab. Based	OSPE				S1				2.44%	1.8%
Studying effect of drugs on Rabbit's blood pressure	Lab. Based	OSPE				S1				2.44%	1.8%
Studying effect of drugs on Rabbit's skeletal muscle	Lab. Based	OSPE				S1				2.44%	1.8%
Prescription writing based on problem	Lab. Based	OSPE						S5		2.44%	1.8%

Topics	Teaching strategies	Assessment methods	Knowledge			Skill			Values	% of total contact hours	% of total summative marks
			K1	K2	...	S1	S2	S5			
based learning-I											
Prescription writing based on problem based learning-II	Lab. Based	OSPE						S5		2.44%	1.8%
Prescription writing based on problem based learning-III	Lab. Based	OSPE						S5		2.44%	1.8%
Assignment										0%	25%
Assignment	SDL	Assignment rubric						S5	V2	0%	25%

Learning Resources

Required Textbooks	a. Lippincott's Illustrated Review of Pharmacology; 7 th ed.; Richard A Harvey & Pamela C Champe; Lippincott's Williams & Wilkins; 2018.
Essential References Materials	a. Basic and clinical pharmacology; 15 th edition; Bertram G. Katzung; McGraw Hill Medical Company; 2020. b. Goodman and Gilman's the Pharmacological Basis of Therapeutics, 13 th ed. Laurence Brunton , Bruce Chabner , Bjorn Knollman, 2017.
Electronic Materials	Digital library
Other Learning Materials	None

Related check lists

PBL

Assignment

Clinical skills checklist

Presentation checklist

Project checklist

Workshop checklist

(Checklist must be aligned with the learning outcomes)

Course quality evaluation

After the end of the course, please give your **FEEDBACK** through the following QR code:

