

**DEPARTMENT OF PHARMACOLOGY &
THERAPEUTICS**

STUDY GUIDE – THIRD YEAR MBBS

2024

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01 – INTRODUCTION

Pharmacology is the science concerned with all aspects of the action of drugs and other chemicals on living systems. Its primary aim is the discovery of chemical mechanisms by which cellular and molecular functions are regulated for the purpose of understanding how existing drugs act and to develop new drugs for treatment and diagnosis of human diseases. The discipline of pharmacology explores biology through the actions of drugs and chemical substances. Drugs and chemicals produce their effects only through modifications of underlying biological systems; their actions are useful in regulating not only normal functions of cells and organisms but also the abnormal processes which occur in disease.

The Department houses a well-equipped laboratory with experimental devices like Kymograph, Tissue Organ Bath and the latest audiovisual aids to teach experimental Pharmacology. There are spacious and well-resourced lecture halls and tutorial rooms and museum to carry out different academic activities.

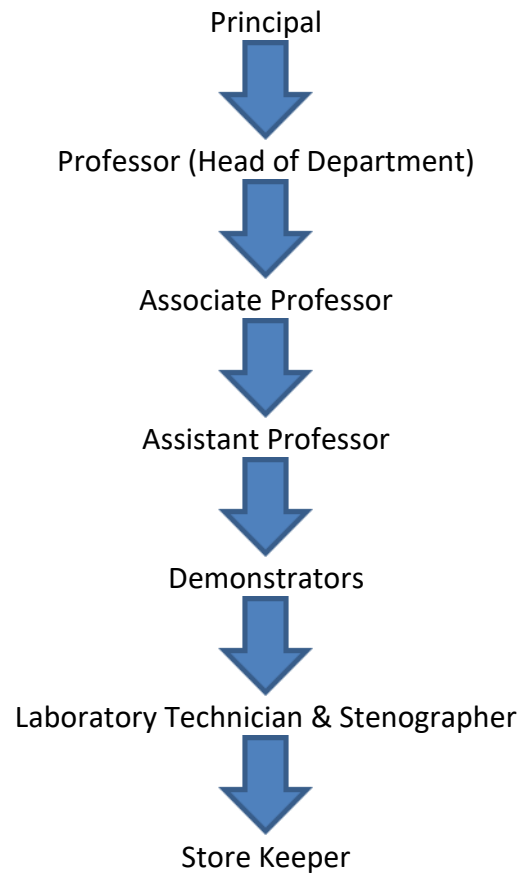
It is the policy of the Department of Pharmacology to take all reasonably practical steps to ensure the safety, health and welfare of all employees, students, visitors, and members of the public on these premises.

All employees, students and all other persons entering onto the premises are responsible for exercising care in relation to themselves and others who may be affected by their actions. They must obey all instructions in respect of health and safety and make sure that their work is carried out in accordance with University and Departmental Health & Safety Policy and Codes of Practice.

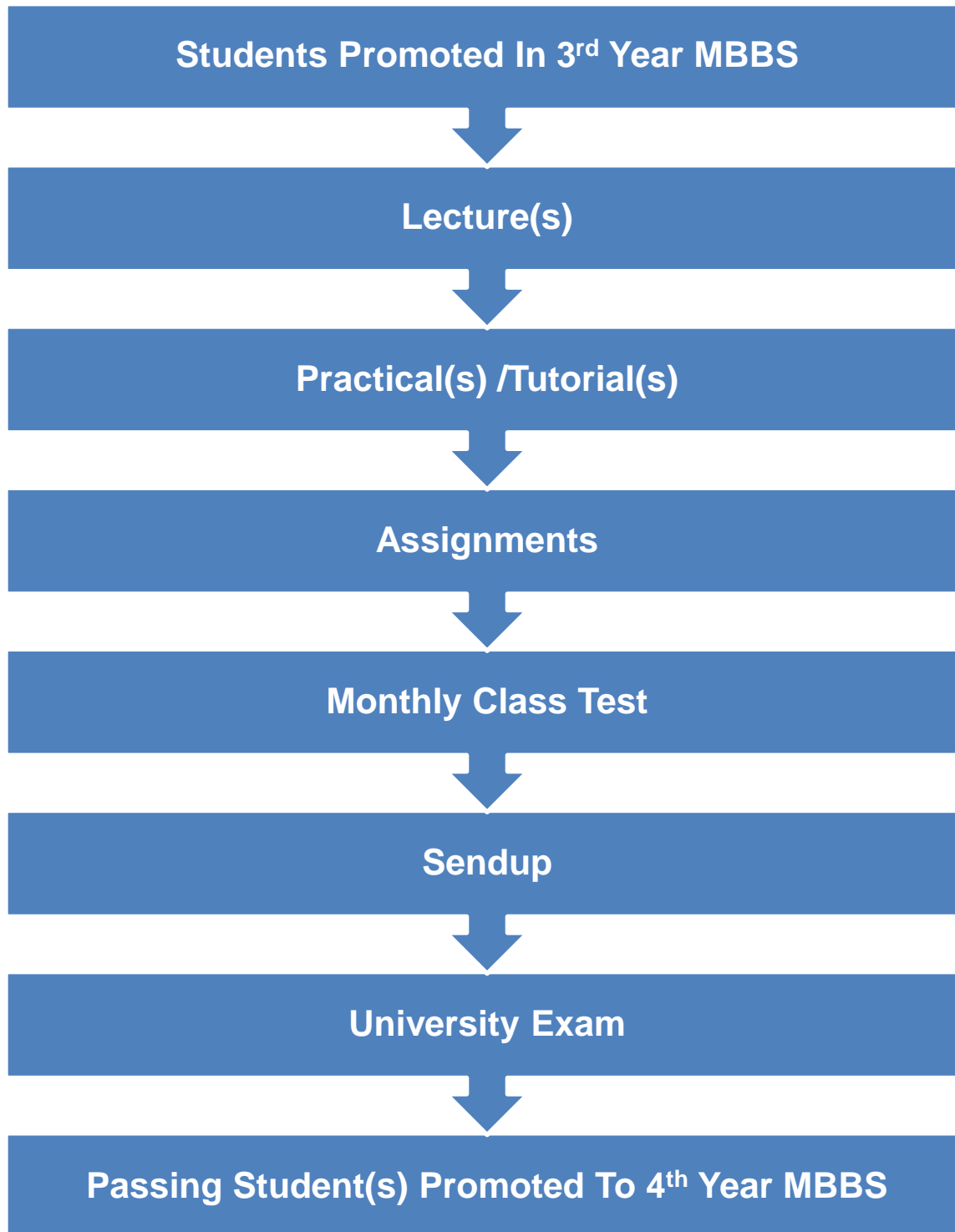
The core curriculum and syllabus approved by Pakistan Medical & Dental Council and Higher Education Commission of Pakistan are followed to provide quality preclinical and clinical education in Pharmacology and Therapeutics.

For teaching staff, most of the essential, modern teaching aids like computers, printer, scanner, USB, multimedia, writable CDs and internet access, including a state of art IT lab, are available.

02 – ORGANOGRAM



03 – WORK FLOW OF DEPARTMENT



04 – UHS SYLLABUS FOR PHARMACOLOGY

General Pharmacology:

1. Definition of pharmacology, objectives of learning pharmacology, definition of drug and drug nomenclature.
2. Branches/divisions of pharmacology.
3. Sources of drugs.
4. Active principles of drugs and pharmacopoeias.
5. Dosage forms and doses of drugs.
6. Route of drug administration.
7. Absorption of drugs and processes involved in drug absorption.
8. Factors modifying absorption of drugs.
9. Transport of drugs across cell-membrane.
10. Bio-availability, its clinical significance and factors affecting bioavailability.
11. Drug reservoirs, distribution and redistribution of drugs, plasma protein binding.
12. Pro-drug, bio-transformation of drugs, enzyme induction, enzyme inhibition and entero-hepatic circulation.
13. Plasma half-life of drugs, steady state concentration, its clinical importance and factors affecting it.
14. Excretion of drugs.
15. Mechanism of drug action.
16. Dose response curves, structure-activity relationship.
17. Factors modifying action and doses of drugs.
18. Pharmacokinetics, pharmacodynamics and receptors.
19. Pharmacogenetics.

Dermatological and topical drugs (Locally Acting Drugs)

Demulcents, emollients, irritants, counter irritants, astringents.
Antiseborrhics, locally acting enzymes.
Antiseptics and disinfectants.
Ectoparasiticides.

Drugs Acting on Gastrointestinal Tract:

Emetics and anti-emetics.
Drugs affecting motility of GIT.
Ulcer healing drugs.
Purgatives/ laxatives.
Antidiarrheal.

Cardiovascular Drugs

Antiarrhythmic drugs.
Inotropic drugs.
Antihypertensive drugs.
Thrombolytics/ anticoagulants/ antiplatelets.
Antihyperlipidemic drugs.
Anti-anginal drugs.
Drug management of CCF.

Diuretics

Autacoids

Drugs Acting on Autonomic Nervous System Cholinergic Drugs.

Choline esters.
Anticholinesterases cholinomimetic alkaloids.
Anti-cholinergic drugs
- Anti muscarinic
- Anti nicotinic
Sympathomimetic / adrenergic drugs:
- Catecholamine
- Non catecholamine
Sympatholytics/antiadrenergics
- Alpha adrenergic receptor blockers.
- Beta adrenergic receptor blockers
Adrenergic neuron blockers
Autonomic ganglionic blockers
Skeletal muscle relaxants
A) neuromuscular blocking agents - d-tubocurarine, suxamethonium, etc.
B) central muscle relaxants, meprobamate, mephenesin, diazepam, etc

Central Nervous System

- a. Sedative-hypnotics.
- b. Anti-epileptics.
- c. General anaesthetics.
- d. Local anesthetics.
- e. Drugs for movement disorder/ muscle relaxant.
- f. Alcohol.
- g. Drugs for migraine.
- h. Stimulants of the central nervous system:

- Caffeine, theophylline, theobromine
- Brain stem stimulants: picrotoxin, nikethamide.
- Ethamivan, doxapram.
- Spinal cord stimulants: strychnine.
- i. Psychopharmacology:
 - Anti-psychotics.
 - Anxiolytics.
 - Anti-depressant / anti mania drugs.
 - Alcohol and drugs of abuse.
 - Anti-parkinson drugs.
 - Anti epileptic drugs

Analgesics

- a. Opioids and narcotics analgesics.
- b. Nonsteroidal anti-inflammatory drugs (NSAIDS).
- c. Anti-gout drugs.

Drugs Acting on Respiratory System

- a. Drugs used in treatment of bronchial asthma.
- b. Expectorants.
- c. Mucolytics.
- d. Antitussives.

Drugs Acting on Endocrine System

- a. Pituitary-hypothalamic drugs.
- b. Adrenocorticoids.
- c. Sex hormones
- d. Thyroid/ parathyroid drugs.
- e. Pancreatic hormones and oral anti diabetic drugs.
- f. Oral contraceptives and anabolic steroids.

Drugs Acting on Uterus

- a. Ergometrine.
- b. Terbutaline.
- c. Dinoprostone.
- d. Carboprost.
- e. Ritodrine.
- f. Oxytocin.

Antimicrobial Drugs

- a. Sulfonamides.
- b. Penicillins.
- c. Cephalosporins.
- d. Aminoglycosides.
- e. Tetracyclines.

- f. Macrolides:
Chloramphenicol.
- g. Quinolones.
- h. Anti- tuberculous drugs.
- i. Antileprosy drugs.
- j. Anti fungal drugs.
- k. Antiviral drugs.
- l. Anti-protozoal drugs: Anti-malarial & Anti-amoebic drugs.
- m. Urinary tract antiseptics.
- n. Anti-cancer drugs.
- o. Immunosuppressive agents.
- p. Miscellaneous.
- q. Vaccines and immunoglobulin drug interaction.

PRACTICALS

A - EXPERIMENTAL PHARMACOLOGY

Experiments designed to observe the action of drugs on animals and isolated tissue.

Experiments on the actions of selected drugs to be demonstrated to the students.

1. Effects of drugs on reflex time.
2. Effects of drugs on frog's heart in situ.
3. Effects of drugs on rabbit's eye.
4. Effects of Acetylcholine and Atropine on isolated rabbit's ileum.
5. Effects of histamine and antihistamines on isolated rabbit's ileum.
6. Schemes to find out unknown drug having stimulatory or inhibitory effect on isolated rabbit's ileum.
7. Effects of neuromuscular blocking agents on frogs rectus abdominus muscle.
8. Methodology of clinical trials.
9. Introduction to Biostatistics.

Pharmacy

1. Weights and measures used clinically.
2. Abbreviations used clinically.
3. Definitions with examples of various dosage forms available for clinic use.
4. Routes of Drug Administration.
5. Calculation for preparation of:
 - a) Saline and Dextrose (different strengths) / Ringer's Lactate Solutions
 - b) ORS powder.
 - c) Sulphur ointment
 - d) Carminative mixture.
 - e) KMnO₄ lotion.
6. Dose calculation for clinical uses, according to age, weight body surface area.
7. Pharmacokinetic calculations – Loading dose and Maintenance Dose, Half – Life and Volume of Distribution.
8. Calculation of rate of IV infusion.

B. PRESCRIPTION WRITING

General principles

General principles
Guideline for rational use of drugs
Prescription writing for common ailments
Acute watery diarrhea
Bacillary dysentery
Amoebic dysentery
Ascariasis & Tape-worm infestation
Acute streptococcal pharyngitis
Iron deficiency anemia
Allergic rhinitis
Scabies
Acute malarial fever
Cerebral malaria
Typhoid fever
Bronchial asthma
Hypertension
Migraine
Cardiac failure
Shock

Clinico-Pharmacological Seminars on Rational Drug Therapy and Drug interactions should be conducted

Antibiotics:

Frequency distribution of antibiotic prescribed in different clinical settings/units.
Rational prescribing pattern of antibiotics.
Parameters: provisional diagnosis, investigation, empirical therapy. Prescribing after culture and sensitivity.

Vitamins:

Parameters
Groups of vitamin prescribed.
Vitamins prescribed on basis of therapeutic indication or empirical.
Single / multiple vitamins
Frequency of prescribing and rational use of vitamins/ otherwise.

Analgesics

Parameters
a. Frequency distribution of various groups of analgesic prescribed.
b. Single / multiple drug prescription.
c. Nonspecific indications of analgesic prescription.

Adverse Drug Reactions

a. Anti-microbials, Cytotoxic drugs , Steroids etc.

RECOMMENDED BOOKS

- 1. Basic and Clinical Pharmacology** by Katzung, 10th Ed., Mc Graw-Hill.
- 2. Pharmacology** by Champe and Harvey, 2nd Ed., Lippincott Williams & Wilkins.

05 – Intended Learning Outcomes (ILOs) for Undergraduate Pharmacology and Therapeutics Program

Topic	Learning Objective At the end of session student must be able to:	Learning Outcomes			Teaching & Learning Strategies	Assessment
		C	P	A		
		Knowledge	Skills	Attitude		
1. Foundational Knowledge	Demonstrate a comprehensive understanding of the principles of pharmacology, including pharmacokinetics, pharmacodynamics, and the mechanisms of drug action.	C			<ul style="list-style-type: none"> • Interactive Lectures • Tutorials • SGD • Team Based Learning • Clinical Integration • Self Directed Learning • Seminars 	<ul style="list-style-type: none"> • MCQs • SEQs • VIVA VOCE • OPEN BOOK TEST
	Explain the physiological and biochemical bases of drug interactions and their impact on therapeutic outcomes.	C				
2. Drug Development and Therapeutics	Describe the processes involved in drug development from discovery through clinical trials to market approval.	C			<ul style="list-style-type: none"> • Interactive Lectures • Tutorials • SGD • Team Based Learning • Clinical Integration • Self Directed Learning • Seminars 	<ul style="list-style-type: none"> • MCQs • SEQs • VIVA VOCE • OPEN BOOK TEST
	Apply knowledge of pharmacokinetics and pharmacodynamics to assess and recommend appropriate drug therapies for various clinical conditions.		P			

3. Clinical Application:	Analyze patient-specific factors (e.g., age, genetics, comorbidities) that influence drug efficacy and safety.	C			<ul style="list-style-type: none"> • Interactive Lectures • Tutorials • SGD • Team Based Learning • Clinical Integration • Self Directed Learning • Seminars 	<ul style="list-style-type: none"> • MCQs • SEQs • VIVA VOCE • OPEN BOOK TEST
	Develop and justify therapeutic strategies for managing common diseases and conditions based on evidence-based guidelines.	C				
4. Critical Thinking and Problem Solving:	Critically evaluate scientific literature related to pharmacology and therapeutics to inform clinical practice and research.	C	P		<ul style="list-style-type: none"> • Interactive Lectures • Tutorials • SGD • Team Based Learning • Clinical Integration • Self Directed Learning • Seminars 	<ul style="list-style-type: none"> • MCQs • SEQs • VIVA VOCE • OPEN BOOK TEST
	Solve complex pharmacological problems using a systematic approach and integrate interdisciplinary knowledge.		P			
5. Ethical and Professional Practice:	Understand and apply ethical principles and legal regulations related to the use of pharmaceuticals and patient care.			A	<ul style="list-style-type: none"> • Interactive Lectures • Tutorials • SGD 	<ul style="list-style-type: none"> • MCQs • SEQs • VIVA VOCE

	Exhibit professionalism in communication, collaboration, and decision-making in both clinical and research settings.			A	<ul style="list-style-type: none"> • Team Based Learning • Clinical Integration • Self Directed Learning • Seminars 	<ul style="list-style-type: none"> • OPEN BOOK TEST
6. Research Skills:	Design and conduct basic research studies in pharmacology, including hypothesis formulation, experimental design, data analysis, and interpretation.	C	P		<ul style="list-style-type: none"> • Interactive Lectures • Tutorials • SGD • Team Based Learning • Clinical Integration • Self Directed Learning • Seminars 	<ul style="list-style-type: none"> • MCQs • SEQs • VIVA VOCE • OPEN BOOK TEST
	Communicate research findings effectively through written reports and oral presentations.		P	A		
7. Patient and Healthcare Systems:	Recognize the role of pharmacology within the broader healthcare system and its impact on patient care, healthcare policies, and health outcomes.	C			<ul style="list-style-type: none"> • Interactive Lectures • Tutorials • SGD • Team Based Learning • Clinical Integration • Self Directed Learning • Seminar 	<ul style="list-style-type: none"> • MCQs • SEQs • VIVA VOCE • OPEN BOOK TEST
	Develop skills for effective communication with patients and other healthcare professionals regarding drug therapy and management.		P	A		

06 - TOS PHARMACOLOGY

MBBS SECOND PROFESSIONAL EXAMINATION **PHARMACOLOGY & THERAPEUTICS**

TABLE OF SPECIFICATIONS

MULTIPLE CHOICE QUESTIONS

Number of MCQs: 65

Total marks: 65

Note: One best answer to be chosen from 05 options

MCQ No: 01 - 05	General Pharmacology
MCQ No: 06 - 09	Drugs acting on ANS
MCQ No: 10 - 16	Drugs acting on CNS
MCQ No: 17 - 21	NSAIDS, Antigout, Antirheumatoid drugs
MCQ No: 22 - 26	Drugs acting on CVS
MCQ No: 27 - 29	Diuretics
MCQ No: 30 - 32	Drugs acting on Blood
MCQ No: 33 - 36	Drugs acting on GIT
MCQ No: 37 - 40	Drugs acting on Respiratory system
MCQ No: 41 - 46	Antimicrobials & antibiotics of general use
MCQ No: 47 - 49	Antimycobacterial drugs, antiprotozoals, anthelmintics
MCQ No: 50 - 51	Antifungal / antiviral drugs
MCQ No: 52 - 55	Antineoplastic drugs
MCQ No: 56 - 62	Drugs acting on endocrine system
MCQ No: 63 - 65	Miscellaneous drugs (antihistamines, autacoids, chelating agents, drugs used in glaucoma)

MBBS SECOND PROFESSIONAL EXAMINATION
PHARMACOLOGY & THERAPEUTICS

TABLE OF SPECIFICATIONS

SHORT ESSAY QUESTIONS

Number of SEQs: 10

Total marks: 70

Note: Seven marks for each question

SEQ No: 01	General Pharmacology
SEQ No: 02	Drugs acting on ANS
SEQ No: 03	Drugs acting on CNS
SEQ No: 04	NSAIDS, Antigout, Antirheumatoid drugs
SEQ No: 05	Drugs acting on CVS, diuretics and blood
SEQ No: 06	Drugs acting on GIT & Respiration
SEQ No: 07	Antimicrobials and antibiotics of general use
SEQ No: 08	Antimycobacterial drugs, antiprotozoal drugs, anthelmintics
SEQ No: 09	Antifungal, antiviral & antineoplastic drugs
SEQ No: 10	Drugs acting on endocrine system

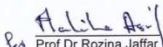
07 – TIME TABLE

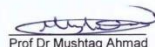
Rahbar Medical & Dental College, Lahore 3rd Year MBBS Time Table (2024)

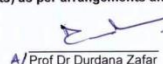
Day / Time	08:00am – 09:00am	09:00am – 10:00am	10:00am – 11:00am	11:00am – 01:00pm	01:00pm – 02:00pm	02:00pm – 03:00pm
Monday	Forensic Medicine	CPC	Pharmacology	Clinical Rotations (All Batches)	Medicine & Allied	Practicals Pathology (Batch - A) / Pharmacology (Batch - B)
Tuesday	Pharmacology	Pathology	Forensic Medicine		Surgery & Allied	Practicals Pathology (Batch - B) / Pharmacology (Batch - A)
Wednesday	Pathology	Pharmacology Lectures / SGD / Tutorials			Behavioral Sciences	Practicals Pathology (Batch A) / Pharmacology (Batch - B)
Thursday	Pharmacology	Pathology Lectures / SGD / Tutorials			Behavioral Sciences	Practicals Pathology (Batch - B) / Pharmacology (Batch - A)
Friday	08:00am – 10:00am	10:00am – 12:00pm		12:00pm – 01:00pm	01:00pm – 02:00pm	02:00pm – 03:00pm
	Forensic Medicine (Batch – A / Batch – B) SGD / Tutorials / Practicals	Pathology		Pharmacology	Jumma Break	*Gynae & Obst / Pediatrics / EYE / ENT

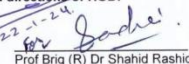
Note:

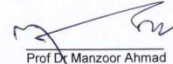
Breaks as per directions of the concerned HODs / facilitators.
 *CPC (1st to 24th Academic Weeks), (Pharmacology 25, 26, 27, 28, 29 & 30), (Pathology 31, 32, 33, 34, 35 & 36)
 *1st and 5th Fridays: Gynae & Obst, 2nd Fridays: Pediatrics, 3rd Fridays: EYE and 4th Fridays: ENT.
 Self Directed Learning (SDL) 03:00 - 04:00 pm, Mondays to Fridays.
 Forensic Medicine Academic Visits: Saturdays (09 Visits) as per arrangements and directions of HOD.
 Community Medicine Academic Visits: Saturdays (06 Visits) as per arrangements and directions of HOD.

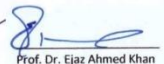

 Prof Dr Rozina Jaffar
 HOD Pathology



 Prof Dr Mushtaq Ahmad
 HOD Pharmacology



 Prof Dr Durdana Zafar
 HOD Forensic Medicine

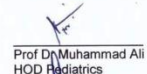

 Prof Brig (R) Dr Shahid Rashid
 HOD Psychiatry & Beh. Scis

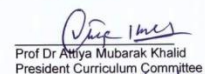

 Prof Dr Manzoor Ahmad
 HOD ENT

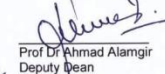

 Prof. Dr. Ejaz Ahmed Khan
 HOD Community Medicine



 Prof Dr Sadaqat Ali Khan
 HOD Surgery & Allied



 Prof Dr Shahnaz Kausar
 HOD Gynae & Obst



 Prof Dr Muhammad Ali
 HOD Radiatics

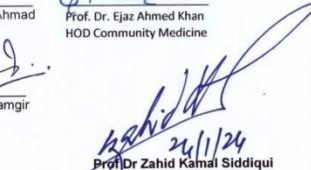

 Prof Dr Atiya Mubarak Khalid
 President Curriculum Committee
 24/01/2024


 Prof Dr Ahmad Alamgir
 Deputy Dean


 Brig (R) Dr Sabir Akbar Zaidi
 Asst Dir Med Edn


 Prof Dr Kamran Khalid
 Director Medical Education


 Brig (R) Muhammad Zia Ullah
 Vice Principal / Dir HR


 Prof Dr Zahid Kamal Siddiqui
 MBBS (Pb), FCPS (Ophth),
 FRCS (Edin), MCPS (HPE)
 HOD Ophthalmology & Principal
 Rahbar Medical & Dental College, Lahore
 24/1/24

08 – TEACHING METHODOLOGY

A traditional method of teaching is followed in RMDC which is aligned with UHS vision, institutional mission to address the local community and national needs with contextual relevance to meet the PM&DC standards. The college encourages active learning as well as flips class room activity.

Our educational strategy include lectures, tutorials, small group discussion, clinical and laboratory work to achieve desired outcome at the end.

1. For self-directed learning, assignments are given and CPCs (Clinical Pathological Conferences) are held on regular basis.
2. Our e-library is linked up with HEC digital portal.

09 – 36 WEEKS DISTRIBUTION OF TOPICS

Department of Pharmacology & Therapeutics Study Guide - 2024

Week	Topic & activities	Facilitator
Week 1	<ul style="list-style-type: none"> ➤ Introduction ➤ Drugs / sources ➤ Pharmacokinetics <p>-----</p> <p>Practical: Routes of Administration. Tutorial: Discussion of topics taught in lectures.</p>	Professor Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
Week 2	<ul style="list-style-type: none"> ➤ Pharmacodynamics ➤ Pharmacogenomics <p>-----</p> <p>Tutorial: Discussion of topics taught in lectures. Practical: Dose calculation and abbreviations.</p>	Professor Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
Week 3	<ul style="list-style-type: none"> ➤ Drug development ➤ Bio transformation <p>-----</p> <p>Tutorial: Preparation for test. Practical: Pharmacognosy</p>	Professor Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
Week 4	<ul style="list-style-type: none"> ➤ Class test General Pharmacology ➤ Introduction to ANS <p>Tutorial: Discussion of topics taught in lectures. Practical: weight & measures</p>	Professor Associate Professor Assistant Professor Demonstrator(s) under supervision of AP / Assoc
Week 5	<ul style="list-style-type: none"> ➤ Neurotransmitters ➤ Receptors ➤ Cholinergic drugs <p>-----</p> <p>Tutorial: Discussion of topics taught in lectures. Practical: weights & measures</p>	Professor Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
		Professor

Week 6	<ul style="list-style-type: none"> ➤ Anticholinergics ➤ Sympathomimetics/sympatholytics <hr style="border-top: 1px dashed black;"/> <p>Tutorial: Discussion of topics taught in lectures. Practical: Preparation and dispensing of: Percentage solutions</p>	Associate Professor Assistant Professor <hr style="border-top: 1px dashed black;"/> Demonstrator(s) under supervision of AP / Assoc
Week 7	<ul style="list-style-type: none"> ➤ Skeletal muscle relaxant ➤ Preanesthetic medication ➤ Clinical application <hr style="border-top: 1px dashed black;"/> <p>Tutorial: Discussion of topics taught in lectures. Practical: Preparation and dispensing of Powders,</p>	Professor Associate Professor Assistant Professor <hr style="border-top: 1px dashed black;"/> Demonstrator(s) under supervision of AP / Assoc
Week 8	<ul style="list-style-type: none"> ➤ Class test ➤ CVS introduction ➤ Anti-hypertensive,anti anginal <hr style="border-top: 1px dashed black;"/> <p>Tutorial: Discussion of topics taught in lectures. Practical: Preparation and dispensing of Mixtures</p>	Professor Associate Professor Assistant Professor <hr style="border-top: 1px dashed black;"/> Demonstrator(s) under supervision of AP / Assoc
Week 9	<ul style="list-style-type: none"> ➤ Anti-arrhythmics ➤ Diuretic & ➤ CCF <hr style="border-top: 1px dashed black;"/> <p>Tutorial: Discussion of topics taught in lectures. Practical: Preparation and dispensing of Ointments</p>	Professor Associate Professor Assistant Professor <hr style="border-top: 1px dashed black;"/> Demonstrator(s) under supervision of AP / Assoc
Week 10	<ul style="list-style-type: none"> ➤ Thrombolytics/anticoagulants/antiplatelets <p>Tutorial: Discussion of topics taught in lectures.</p> <hr style="border-top: 1px dashed black;"/> <p>Tutorial: Discussion of topics taught in lectures. Practical: Preparation and dispensing of Liniments</p>	Professor Associate Professor <hr style="border-top: 1px dashed black;"/> Demonstrator(s) under supervision of AP / Assoc
Week 11	<ul style="list-style-type: none"> ➤ Antihyperlipidemic drugs. ➤ Drugs used in anemias ➤ <hr style="border-top: 1px dashed black;"/> <p>Tutorial: Discussion of topics taught in lectures. Practical: Preparation and dispensing of Emulsion</p>	Professor Associate Professor Assistant Professor <hr style="border-top: 1px dashed black;"/> Demonstrator(s) under supervision of AP / Assoc
	<ul style="list-style-type: none"> ➤ Class test ➤ Drugs Acting on Respiratory System 	Professor Associate Professor

Week 12	----- Tutorial: Discussion of topics taught in lectures. Practical: Biostatistics	Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
Week 13	<ul style="list-style-type: none"> ➤ Drugs acting on endocrine system ➤ ----- Tutorial: Discussion of topics taught in lectures. Practical: Effects of drugs on frog's heart in situ.	Professor Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
Week 14	<ul style="list-style-type: none"> ➤ Drugs acting on endocrine system ➤ Class test ----- Tutorial: Discussion of topics taught in lectures. Practical: Effects of drugs on rabbit's eye	Professor Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
Week 15	<ul style="list-style-type: none"> ➤ Introduction to CNS Neuronal organization and Neurotransmitters ➤ Sedative-hypnotics, Pharmacotherapy of sleep disorder ----- Tutorial: Discussion of topics taught in lectures. Practical: Effects of drugs on isolated rabbit's ileum	Professor Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
Week 16	<ul style="list-style-type: none"> ➤ Psychopharmacology: antipsychotics, antidepressants, anxiolytics, ➤ Antimania drugs Anaesthetics: Local and general anaesthetics. ➤ CNS stimulant drugs Tutorial: Discussion of topics taught in lectures. Practical: stimulatory or inhibitory effect of drugs on isolated rabbit's ileum	Professor Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
Week 17	<ul style="list-style-type: none"> ➤ Pharmacotherapy of Pain and inflammation ➤ Opioids and Non-Steroidal Anti-inflammatory Drugs (NSAIDs) ----- Tutorial: Discussion of topics taught in lectures. Practical: Effects of neuromuscular blocking agents on frog rectus abdominis muscle	Professor Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
	<ul style="list-style-type: none"> ➤ Pharmacotherapy of Gout, Rheumatoid arthritis ➤ Drugs for movement disorder/muscle relaxant 	Professor Associate Professor

Week 18	----- ----- Tutorial: Discussion of topics taught in lectures. Practical: graded dose response curve	Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
Week 19	Tutorial: Discussion of topics taught in lectures. Practical: competitive & non-competitive antagonism on graded dose response curve	Professor Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
Week 20	➤ Pharmacotherapy of Epilepsy, Parkinsonism, Migraine ----- Tutorial: Discussion of topics taught in lectures. Practical: prescription writing	Professor Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
Week 21	➤ Class test ➤ Drugs Acting on Uterus ----- Tutorial: Discussion of topics taught in lectures. Practical: prescription writing	Professor Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
Week 22	➤ Introduction to chemotherapy ➤ Antimicrobials acting on cell wall ➤ Protein synthesis inhibitors ----- Tutorial: Discussion of topics taught in lectures. Practical: prescription writing	Professor Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
Week 23	➤ Nucleic acid synthesis inhibitors ➤ Antifolates / Gyrase inhibitors ➤ Anti-mycobacterial drugs. ----- Tutorial: Discussion of topics taught in lectures. Practical: prescription writing	Professor Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
	➤ Anti-mycobacterial drugs. ➤ Anti-fungal drugs.	Professor

Week 24	<ul style="list-style-type: none"> ➤ Antiviral drugs. ➤ Anti-protozoal drugs 	Associate Professor Assistant Professor
	----- Tutorial: Discussion of topics taught in lectures. Practical: prescription writing	Demonstrator(s) under supervision of AP / Assoc
Week 25	<ul style="list-style-type: none"> ➤ Chemotherapy for Sexually Transmitted Diseases (STDs) ➤ Cancer chemotherapy 	Professor Associate Professor Assistant Professor
	----- Tutorial: Discussion of topics taught in lectures. Practical: prescription writing	Demonstrator(s) under supervision of AP / Assoc
Week 26	<ul style="list-style-type: none"> ➤ Class test ➤ Immunopharmacology 	Professor Associate Professor Assistant Professor
	----- Tutorial: Discussion of topics taught in lectures. Practical: prescription writing	Demonstrator(s) under supervision of AP / Assoc
Week 27	<ul style="list-style-type: none"> ➤ Immunopharmacology 	Professor Associate Professor Assistant Professor
	----- Tutorial: Discussion of topics taught in lectures. Practical: prescription writing	Demonstrator(s) under supervision of AP / Assoc
Week 28	<ul style="list-style-type: none"> ➤ Drug therapy in children, elderly, during pregnancy and lactation. ➤ Drug therapy in disease states such as renal and hepatic disease. 	Professor Associate Professor Assistant Professor
	----- Tutorial: Discussion of topics taught in lectures. Practical: prescription writing	Demonstrator(s) under supervision of AP / Assoc

Week 29	<ul style="list-style-type: none"> ➤ MCQ , SEQ practice 	Professor Associate Professor Assistant Professor
	----- Practical: revision Tutorial: viva practice, discussion of different topics.	Demonstrator(s) under supervision of AP / Assoc

Week 30	<p>➤ MCQ , SEQ practice</p> <p>-----</p> <p>Practical: revision Tutorial: viva practice, discussion of different topics.</p>	<p>Professor Associate Professor Assistant Professor</p> <p>-----</p> <p>Demonstrator(s) under supervision of AP / Assoc</p>
Week 31	<p>➤ MCQ , SEQ practice</p> <p>-----</p> <p>Practical: revision Tutorial: viva practice, discussion of different topics.</p>	<p>Professor Associate Professor Assistant Professor</p> <p>-----</p> <p>Demonstrator(s) under supervision of AP / Assoc</p>
Week 32	<p>➤ MCQ , SEQ practice ➤ Practical: revision</p> <p>-----</p> <p>Tutorial: viva practice, discussion of different topics.</p>	<p>Professor Associate Professor Assistant Professor</p> <p>-----</p> <p>Demonstrator(s) under supervision of AP / Assoc</p>
Week 33	<p>MCQ , SEQ practice</p> <p>-----</p> <p>Practical: revision Tutorial: viva practice, discussion of different topics.</p>	<p>Professor Associate Professor Assistant Professor Demonstrator(s) under supervision of AP / Assoc</p>
Week 34	<p>➤ MCQ , SEQ practice ➤ Comprehensive test</p> <p>-----</p> <p>Practical: revision Tutorial: viva practice, discussion of different topics.</p>	<p>Professor Associate Professor Assistant Professor</p> <p>-----</p> <p>Demonstrator(s) under supervision of AP / Assoc</p>
Week 35	<p>MCQ , SEQ practice Comprehensive test</p> <p>-----</p> <p>Practical: revision Tutorial: viva practice, discussion of different topics.</p>	<p>Professor Associate Professor Assistant Professor</p> <p>-----</p> <p>Demonstrator(s) under supervision of AP / Assoc</p>

		Professor
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Week 36	Comprehensive Revision Test	Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
Week 37	Comprehensive Revision test	Professor Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
Week 38	Comprehensive Revision test	Professor Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
Week 39	Comprehensive Revision Test	Professor Associate Professor Assistant Professor Demonstrator(s) under supervision of AP / Assoc
Week 40	Comprehensive Revision Test	Professor Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
Week 41	Comprehensive Revision Test	Professor Associate Professor Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
		Professor Associate Professor

Week 42	Comprehensive Revision Test	Assistant Professor ----- Demonstrator(s) under supervision of AP / Assoc
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10 – TEACHING SCHEDULE

The teaching schedule is as per the time table attached. The department of Pharmacology functions as per the guide lines of the institution, under the umbrella of PMDC and UHS.

Class lectures are only delivered by the Professor, Associate Professor and the Assistant Professor.

Every topic starts with an introduction of the topic, learning objectives for the students, challenges, if any, in the subject matter, skills needed to be learnt in the particular subject matter and goals of teaching.

At the end of a particular chapter or topic, in addition to question and answer sessions during lectures, students are assessed as to their knowledge, skills and attitudes, in class tests and vivas.

11 – LIST OF FACULTY MEMBERS

PROFESSOR DR. MUSHTAQ AHMAD MBBS; DOMS; M.Phil	Head of Department	5764-P
DR. MUHAMMAD AHMAD ALAMGIR MBBS; DTCD; MACCP; M.Phil, CHPE; PhD fellow	Professor	19588-P
DR. MARYAM NADEEM MBBS; M.Phil	Assistant Professor	75545-P
DR. IQRA MUSTAFA MBBS;	Demonstrator	89276-P
DR. SAMAN IJAZ MBBS;	Demonstrator	88275-P
Dr. Wafa Manzoor MBBS;	Demonstrator	72882-P

12 – ASSESSMENT METHODOLOGY

The RMDC has a comprehensive assessment plan encompassing formative and summative method of teaching and learning.

Formative Assessment Plan

Evaluation is carried out under the FAP continuous round the year and test schedule is displayed on notice board. This assessment is covering knowledge skills and attitudes.

Summative Assessment and Internal Sendup Examination

Summative assessment is carried out annually at the end of academic session prior to the university annual examination. It contains following instruments: -

- (1) MCQs
- (2) SEQs
- (3) PBLs
- (4) Viva

Objectively Structured Performance Evaluation (OSPE)

We have an internal assessment of each student as a pre-exam quality assurance standard. During exams confidentially and setting up of a difficulty index to ensures an exam quality assurance. An examination audit as a post exam is carried out thereof. The assessment includes MCQs, SEQs, OSPE and Viva aligned with UHS directive in conformance with the weightage of subjects. The student(s) are allowed to appeal against his/her result in light of UHS policy. The student(s) has a right to put forward his/her grievances / discrepancies affecting him to the curriculum committee for appropriate action and decision.

Assessment Principles

Adopt programmatic approach being an quest of improvement.

Use collective efforts of faculty members and staff to assess competence as whole.

Designed comprehensive assessment program by using presupposed criteria as shown in the table below.

Assessment is based on the following:-

Purpose of assessment.

Determine content to be assessed.

Select relevant assessment procedures.

Incorporate variety in assessment procedures.

Beware of limitation of assessment procedures.

Modify instructional plan according to feedback.

Assessment is a means to an end, not an end in itself.

Assessment Procedures

RMDC is adhered to the following instructional model (Figure 3) in carrying out assessment. The simplified instructional model (Figure 3) summarized below showing the basic steps to be followed in the instructional process and it illustrates the interrelated nature of teaching learning and assessment.

1. Students should learn to apply the principles of clinical pharmacology and rational pharmacotherapy in clinical practice.
2. Develops skills and attitudes needed to recognize and avoid irrational prescribing.
3. Understand the principles of individualization of drug therapy.
4. Have knowledge of rational pharmacotherapy of diseases and medical conditions most commonly seen in routine medical practice.
5. Understand and learn the skills and attitudes needed to evaluate drug therapy regimens.



University of Health Sciences Lahore

Khayaban-e-Jamia Punjab, Lahore. Phone: 042-99231304-9 Ext: 321

Examinations Department
UHS/CE/2023/8415
Date: 03-10-2023

The Principals,
All Affiliated Medical Institutions
University of Health Sciences, Lahore.

Subject: EXAMINATION CALENDAR FOR MBBS ANNUAL EXAMINATIONS 2023

With reference to Joint Meeting of the Board of Studies & Academic Council held on 12th August 2023, all Professional MBBS Annual Examinations 2023 will be held according to following scheduled:

First Prof. MBBS (Modular Integrated Curriculum 2K23) Annual Examination 2023

DATE	DAY	SUBJECT
12 th January, 2024	Friday	Block-I
16 th January, 2024	Tuesday	Block-II
19 th January, 2024	Friday	Block-III

Admission Form Last date for submission of Admission Forms at UHS with single fee is 27-12-2023
Last date for submission of Admission Forms at UHS with double fee is 03-01-2024
Internal Assessment Internal Assessment shall be submitted on or before 12-01-2023 according to their UHS roll numbers.

First Prof. MBBS Annual Examination 2023

DATE	DAY	SUBJECT
12 th January, 2024	Friday	Anatomy (Including Histology)
16 th January, 2024	Tuesday	Physiology
19 th January, 2024	Friday	Biochemistry

Admission Form Last date for submission of Admission Forms at UHS with single fee is 27-12-2023
Last date for submission of Admission Forms at UHS with double fee is 03-01-2024
Internal Assessment Internal Assessment shall be submitted on or before 12-01-2024 according to their UHS roll numbers.

Second Prof. MBBS Annual Examination 2023

DATE	DAY	SUBJECT
19 th December 2023	Tuesday	Anatomy (Including Histology)
22 nd December 2023	Friday	Physiology
26 th December 2023	Tuesday	Biochemistry
30 th December 2023	Saturday	Islamic studies / Ethics & Pak. Studies

Admission Form Last date for submission of Admission Forms at UHS with single fee is 04-12-2023
Last date for submission of Admission Forms at UHS with double fee is 11-12-2023
Internal Assessment Internal Assessment shall be submitted on or before 19-12-2023 according to their UHS roll numbers.

Third Prof. MBBS Annual Examination 2023

DATE	DAY	SUBJECT
29 th December, 2023	Friday	Pharmacology & Therapeutics
2 nd January, 2024	Tuesday	General Pathology & Microbiology
5 th January, 2024	Friday	Forensic Medicine & Toxicology
9 th January, 2024	Tuesday	Behavioural Sciences

Admission Form Last date for submission of Admission Forms at UHS with single fee is 15-12-2023
Last date for submission of Admission Forms at UHS with double fee is 22-12-2023
Internal Assessment Internal Assessment shall be submitted on or before 29-12-2023 according to their UHS roll numbers.

Fourth Prof. MBBS Annual Examination 2023

DATE	DAY	SUBJECT
23 rd January, 2024	Tuesday	Special Pathology
26 th January, 2024	Friday	Otorhinolaryngology
30 th January 2024	Tuesday	Community Medicine
2 nd February 2024	Friday	Ophthalmology
6 th February 2024	Tuesday	General Pathology (only for candidates who sat in this paper previously)

Admission Form Last date for submission of Admission Forms at UHS with single fee is 08-01-2024
Last date for submission of Admission Forms at UHS with double fee is 15-01-2024
Internal Assessment Internal Assessment shall be submitted on or before 23-01-2024 according to their UHS roll numbers.

Final Prof. MBBS Annual Examination 2023

DATE	DAY	SUBJECT
2 nd February 2024	Friday	Otorhinolaryngology (only for candidates who sat in this paper previously)
6 th February 2024	Tuesday	Ophthalmology (only for candidates who sat in this paper previously)
9 th February, 2024	Friday	Paediatrics
13 th February, 2024	Tuesday	Medicine-I and Allied
16 th February, 2024	Friday	Medicine-II and Allied
20 th February, 2024	Tuesday	Surgery-I and Allied
23 rd February, 2024	Friday	Surgery-II and Allied
27 th February, 2024	Tuesday	Obstetrics
1 st March, 2024	Friday	Gynaecology

Admission Form Last date for submission of Admission Forms at UHS with single fee is 16-01-2024
Last date for submission of Admission Forms at UHS with double fee is 23-01-2024
Internal Assessment Internal Assessment shall be submitted on or before 02-02-2024 according to their UHS roll numbers.

M. Farooq Malik
Deputy Controller of Exams.

DR. MUHAMMAD ABBAS
Controller of Examinations

Copy to:

- Registrar, UHS Lahore
- PSO to Vice Chancellor, UHS
- PSO to Pro-Vice Chancellor, UHS