

Course Specification

University: Al-Azhar

Faculty: Medicine

Department: Medical **Pharmacology**

1- Data of the course:

Code of the course: 302-phar	Title of the course: Pharmacology 3 rd year course for MBBCh program	Year: 3rd year of MBBCh medical program
Specialty: Medical Pharmacology	Number of teaching units: Duration: 34 weeks	Lectures: 100 hrs Total:200 hrs Practical: 100 hrs

2- Objectives of the course:	<p><i>Undergraduate students will be able to demonstrate knowledge of / ability to:</i></p> <ol style="list-style-type: none"> 1- Know the General principles: Course introduction and terminology, pharmacokinetics and clinical applications, pharmacodynamics, principles of toxicology (drug toxicity and adverse drug reactions) 2- Systemic Pharmacology: Pharmacology of drugs affecting body systems including nervous (autonomic and central), cardiovascular, respiratory, renal, gastrointestinal, endocrine, musculoskeletal, hematopoietic and immune systems as well as psychotropic, autacoids, antimicrobial and anti-neoplastic agents. 3- Practical pharmacology experiments, demonstrations and workshops. Keep legible and complete experimental records interpret experimental results and draw reasonable conclusions. 4- Problem solving case study, student must be certain of diagnosis, identify the disease, the problems, and how to manage for them. Able to choose the proper treatment, bases of choosing the right drug, apply the information about adverse drug reactions, and drug interaction according to patient problems and drugs used. 5- Project write-up and presentation. 6- Communicate effectively with his colleagues, teachers and employees in the department. 7- Communicate effectively through oral and written reports 8- Achieve high ethical standards 9- Learn independently.
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3- ILOs

<p>A- Knowledge and understanding:</p>	<p>1. Good knowledge of basic principles of General Pharmacology including, Introduction and scope of Pharmacology, Pharmacokinetics, Pharmacodynamics and Pharmacotherapeutics.</p> <p>1.1 Introduction and scope of Pharmacology: Terminology, Nature and sources of drugs.</p> <p>1.2 Pharmacokinetics: Various routes of drug administration and pharmacokinetics of absorption, distribution, metabolism and excretion of drugs. Definitions and applications of bioavailability, half-life, volume of distribution and clearance.</p> <p>1.3 Pharmacodynamics: Mechanisms of drug action, Drug-receptor interactions, Definitions of agonists, antagonists, tolerance, tachyphylaxis and desensitization, Dose-response relationship). Adverse-drug reactions and factors influencing drug safety and effectiveness, Therapeutic index. Drug abuse and dependence.</p> <p>1.4 Pharmacotherapeutics and Prescription writing.</p> <p>1.5 Up-to-date knowledge about pharmacology of major classes of drugs affecting various body systems including: Pharmacology of Autonomic Nervous System, CNS, CVS, and Pharmacology of almost all other body systems.</p> <p>Drugs acting on autonomic nervous system and neuro-effector sites:</p> <p>1.5.1 Introduction and autonomic nervous system divisions, cholinomimetics, and anti-muscarinic.</p> <p>1.5.2 Nicotinic receptors and blockers, neuro-muscular blockers, ganglionic blockers, and treatment of myasthenia gravis.</p> <p>1.5.3 Catecholamines (adrenaline, nor-adrenaline and dopamine), other sympathomimetic drugs.</p> <p>1.5.4 Sympatholytic drugs (alpha and beta adrenergic receptor antagonists and adrenergic neuron blockers)</p> <p>1.5.5 Eye Pharmacology: Meiotics, mydriatics, drugs affecting IOP, treatment of glaucoma, locally acting drugs.</p> <p>Drugs acting on CVS and blood:</p> <p>1.5.6 Drugs for the management of hypotension, hypertension and Diuretic agents.</p> <p>1.5.7 Drugs for the management of</p>
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cardiac ischemia.

1.5.8 Drugs for the management of heart failure.

1.5.9 Drugs for the management of arrhythmias.

1.5.10 Anticoagulants, anti-platelets, and drugs used for hyperlipidemia and anemia.

Drugs acting on respiratory tract:

1.5.11 Drugs for the management of bronchial asthma and cough: bronchodilators, mucolytics, anti-inflammatory agents, corticosteroids, autacoid and antagonists, surface active agents, tussives and anti-tussive drugs, and gases in medical therapy.

Drugs acting on GI tract:

1.5.12 Drugs for the management of dyspepsia and peptic ulcer.

1.5.13 Drugs used as emetics, anti-emetics, anti-diarrheal drugs, and laxatives.

Drugs acting on central nervous system:

1.5.14 Introduction and CNS neurotransmitters, Sedative-Hypnotic drugs, anti-anxiety, anti-psychotic, and anti-depressant drugs.

1.5.15 Drugs for the management of epilepsy.

1.5.16 Drugs for the management of Parkinson's disease.

1.5.17 General and local anesthetics.

1.5.18 Analgesic drugs: Narcotic analgesics and drug abuse, non-steroidal anti-inflammatory drugs, and adrenocorticosteroids.

1.5.19 Drugs used in the management of arthritic diseases: Rheumatic, rheumatoid, osteoarthritis arthritis, and gout.

Autacoids

1.5.20 Histamine, anti-histaminics, 5-HT and other amines, eicosanoids, and treatment of anaphylactic shock and allergy.

Endocrine pharmacology

1.5.21 Introduction, endocrine functions, mechanisms of control and actions, pituitary hormones and treatment of abnormalities.

1.5.22 Thyroid abnormalities, thyroid preparations, anti-thyroid drugs, and treatment of abnormalities.

1.5.23 Pancreatic hormones, diabetes mellitus, insulin preparations, and oral anti-diabetic drugs.

1.5.24 Adrenocortical hormones, glucocorticoids, mineralocorticoids,

	<p>adrenocortical antagonists and treatment of abnormalities.</p> <p>1.5.25 Sex hormones, estrogens, progesterones, androgens, anabolic hormones, treatment of hormonal abnormalities, contraceptives, and Sex hormone antagonists.</p> <p>1.5.26 Agents affecting bone mineralization, treatment of osteoporosis and hypervitaminosis.</p> <p>Anti-microbial and chemotherapeutic agents:</p> <p>1.5.27 Introduction to antimicrobials, mechanisms of action and resistance.</p> <p>1.5.28 Penicillins, cephalosporins and other beta-lactams.</p> <p>1.5.29 Aminoglycosides and macrolides.</p> <p>1.5.30 Tetracyclines, chloramphenicol and miscellaneous antibiotics.</p> <p>1.5.31 Anti-tuberculous drugs.</p> <p>1.5.32 Sulphonamides, cotrimoxazole and quinolones.</p> <p>1.5.33 Anti-fungal, anti-viral, and antiprotozoal drugs.</p> <p>1.5.34 Cancer chemotherapeutic drugs.</p> <p>Drug and environmental toxicity and treatment:</p> <p>1.5.35 The management of drug toxicity and over dose.</p> <p>1.5.36 The management of heavy metal and environmental intoxication.</p> <p>Basic clinical pharmacology</p> <p>1.5.37 Drug prescription writing, prescriptions for selected cases, dealing with clinical scenarios to modify the prescription according to patient needs and problems (who to choose the proper drug for your patient)</p> <p>1.5.38 Basics of ethics, medico-legal aspects of health problems, avoiding malpractices and common medical errors.</p> <p>1.5.39 Drug problems and reporting to authority</p>
<p>B- Intellectual Skills:</p>	<p>At the end of the course the students should able to:</p> <p>1.2.1 Enhance theoretical knowledge with practical pharmacology experiments, case study and group discussion.</p> <p>1.2.2 Encourage development of critical skills and ability to appraise the ever expanding information on current drugs.</p> <p>1.2.3 Evaluate drugs used in treatment according to solid criteria like; Potency, safety, efficacy, suitability, and drug cost.</p>

<p>C- Professional Skills:</p>	<p>At the end of the course the students should able to</p> <ol style="list-style-type: none"> 1.3.1 Work out drug dosage based on patient's weight, age and health condition. 1.3.2 Determine the best rout of drug administration, considering the suitability the onset and duration of action of a drug. 1.3.3 Determine the best form of drug administration, considering the bioavailability and suitability for patient. 1.3.4 Gain the experience to conduct an isolated organ experiment to see the effect of drugs on different tissues and to discover the mechanism of drug action (the key point in pharmacology). 1.3.5 Work out drug dose-response curve In order to make rational therapeutic decision through better understanding of: the variations in drug responsiveness, therapeutic effects and side effects. It also explains the relative pharmacologic potency and maximal efficacy to the desired therapeutic effect. 1.3.6 Can write a legal Prescription form. 1.3.7 Write Prescriptions for some selected cases. 1.3.8 Can to modify the prescription to meet the need of different cases. 1.3.9 Analyze and Solve clinical problems. 1.3.10 Specify the therapeutic objective for a particular condition 1.3.11 Choose between drug and non-drug treatments; select an appropriate drug. 1.3.12 Write a correct prescription; counsel patients, and arrange follow-up. 1.3.13 Deliver drug related and non-drug information to the patient. <p>Gain the experience to make p-list and p-patient-list and be aware of their importance</p>
<p>D- General Skills:</p>	<p>At the end of the course the students should able to:</p> <ol style="list-style-type: none"> 1.4.1 Communicate ideas and argument effectively. 1.4.2 Work effectively within a team. 1.4.3 Solve problems related to Drugs, patients, work management among colleagues. 1.4.4 Adopt an empathic and holistic approach to the patients and their problems. 1.4.5 Respect patients' rights and involve them and their caretakers in management decision. 1.4.6 Understand and comply with different cultural believes and values in the community. 1.4.7 Recognize the important role played by other health care professions in patients' management. 1.4.8 Be aware and understand the national code of ethics.

4-Course
Content:

Theoretical Course Contents:

Ser.	Subjects	Lectures hours	Practical and small group hours	% total hours
1	General	12	6+6	10%
2	Autonomic	18	10+10	15%
3	Cardiovascular	12	6+6	10%
4	Respiratory	4	2+2	3.3%
5	GIT	4	2+2	3.3%
6	Blood	4	2+2	3.3%
7	Autacoids	4	2+2	3.3%
8	Endocrine	12	6+6	10%
9	CNS	20	8+8	17%
10	Chemotherapy and anti-infectives	24	6+12	20%
11	Drug toxicity and treatment	6	4+4	5%
Total		120	60+60	100%

Course time plan

Item	Time Schedule	Hours	Total hours
1- Lectures	Daily One hour X 4 days / Week	4 x 30	120
2- Practical classes	Once/ Week X 2 Hours from 11.30 am to 1.30	2 x 30	60
3- Tutorial and small group classes	Once/ Week X 2 Hours from 1.30 am to 3.30	2 x 30	60

4- Methods of teaching:	A. Lectures B. Practical C. Small group classes D. Problem oriented case study E. Tutorials F. Seminar/ Workshop G. Researches and assignments
5- Methods of teaching of handicaps	Not present

7- Students evaluation and assessment:

<p>A- Method of assessment :</p>	<p>I. <u>Attendance criteria:</u> <i>The minimum acceptable attendance in the practical and tutorial classes is 75%. Students fail to attend the required percentage will not be allowed to attend the final practical exam.</i></p> <p>II. <u>Assessment tool:</u></p> <table border="1" data-bbox="571 992 1596 1451"> <thead> <tr> <th><i>Tool</i></th> <th><i>Purpose</i></th> </tr> </thead> <tbody> <tr> <td><i>Written examination</i></td> <td><i>Assessment of knowledge and understanding</i></td> </tr> <tr> <td><i>Practical examination</i></td> <td><i>Assessment of practical, intellectual and general skills</i></td> </tr> <tr> <td><i>Oral examination</i></td> <td><i>Assessment of knowledge and understanding</i></td> </tr> <tr> <td><i>Log book</i></td> <td><i>Assessment of sharing in the scientific day (once a year) and the overall activities during the academic year.</i></td> </tr> </tbody> </table> <p>Written, Practical, Oral examination and Log book</p>	<i>Tool</i>	<i>Purpose</i>	<i>Written examination</i>	<i>Assessment of knowledge and understanding</i>	<i>Practical examination</i>	<i>Assessment of practical, intellectual and general skills</i>	<i>Oral examination</i>	<i>Assessment of knowledge and understanding</i>	<i>Log book</i>	<i>Assessment of sharing in the scientific day (once a year) and the overall activities during the academic year.</i>
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<p>B-Time of assessment</p>	<p><u>Assessment schedule:</u></p> <p>A. Continuous assessments throughout the whole year</p> <p>B. Formative examination: Midyear exam: February. (Student knows his marks after the formative exam).</p> <p>C. Final examination: In June. Those who fail to pass the final exam or postpone it can enter the final exam re-held in September</p>										

C-Allocated marks/Distribution Total: 300 marks	Examination:		
	Examination	Description	Marks (%)
	Continuous assessments	Short essay exam and MCQ exam	15 (5)
	Researches	Presented as a written scientific paper and presentation by data show	5 (1.66)
	Mid-year exam	Short essay exam and MCQ exam	40 (13.33)
	Final Exam	A 3 hours written paper composed of short essay	80 (26.66)
	Practical / clinical final exam MCQ	Identify unknown drug from provided drug response curve, prescription writing, case study and MCQ	120 (40)
	Oral exam	The student will examine in front of 2 different examiners (2 settings).	40 (13.33)
	Total		300(100%)

A. The minimum passing score is 180 marks, provided at least 24 marks are obtained in the written exam.
B. Passing grades are: Excellent $\geq 85\%$, very good $\geq 75\%$, good $\geq 65\%$ and fair $\geq 60\%$.

8- Teaching books, notebooks, and references:

- Books/Notebooks:	
- References:	

Head of the department

Course Coordinator: