

University of Tripoli
Faculty of Medicine
Department of pharmacology
Third year undergraduate program

The course is composed of two modules:

1- Theory 2- Practical

Course Duration:

Total Teaching Hours:

Lectures: 148

Practical: 37

MODULE (I)

TOTAL TEACHING HOURS:

Lectures: 148

I. GOAL OF THE COURSE:

This course deals with the concepts of pharmacodynamics (e.g., drug-receptor interactions, mechanisms, and dose-effect relationships) and pharmacokinetics (e.g., drug absorption, distribution, metabolism, and elimination). The course emphasizes the biochemical and physiological bases for understanding drug action, and it introduces many major classes of drugs. Groups of drugs which are specifically considered include those acting on the autonomic nervous system, those most prominently affecting the immune system, those used in treating disorders of the cardiovascular and respiratory systems, and those used in treating neoplastic and infectious diseases.

II. INTENDED LEARNING OUTCOMES (ILOs):

1. Knowledge and Understanding:

Students are expected to develop a solid understanding of the principles by which drugs produce effects in the human body. As such, they will:

- a. Understand fundamental principles of drug action, including basic pharmacokinetics, dose-response relationships, and receptor binding.
- b. Understand handling of drugs by the body in all the individuals including children, elderly, lactating and pregnant women and those having a renal and/or hepatic disease and genetic variations.
- c. become familiar with the therapeutic uses and routes of administration of the major classes of drugs.
- d. Understand the mechanism of action of each major class of drugs.
- e. Know common side effects associated with major classes of drugs.

2 - Practical Skills:

Interpret data from in-vitro and in-vivo experiments designed to study the effect of drugs in animals.

3- Professional Attitudes and Behavioural Skills::

The student should demonstrate professional behaviour during activities in the course by being in attendance when required, on time, attentive, and a considerate and active participant in discussions.

III. COURSE CONTENT:

TOPICS	Number of Hours	
	Lecture	
1- Introduction	1	
2- General pharmacology	14	
- Definition of relevant terms		
- Routes of drug administration		
- Pharmacokinetics: Absorption Distribution Metabolism Excretion		
- Pharmacodynamics: The site & Mechanisms of drug action Dose- response relationship Factors affecting dosage & drug response Pharmacogenetics Unwanted effects of drugs		
3- Drugs affecting autonomic nervous system	16	
- Anatomical & physiological consideration		
- Neurohumoral transmission		
- Drugs acting on cholinergic system: Directly acting cholinergic drugs Anticholinergic drugs - Drugs acting on autonomic ganglia - Drugs acting on neuromuscular - Drugs acting on adrenergic system Adrenergic drugs Adrenoreceptors blocking drugs		
4- Autacoids & therapy of inflammation	12	
- Histamine & histamine antagonists		
- Angiotensin & bradykinin		
- Eicosanoids		
- Nonsteroidal anti-inflammatory agents		
- Therapy of rheumatoid arthritis		
- Therapy of gout		
5- Central nervous system	24	
- Opioid analgesics		
- General anaesthetics, preanesthetic medication		
- Local anesthetics		
- Sedative hypnotics, antianxiety		
- Alcohols		
- Antiepileptics		
- Antiparkinsonian drugs		
- Antipsychotic drugs and Lithium		
- Antidepressants		
- CNS stimulants		
- Drug dependence		

6- Drugs affecting GIT functions <ul style="list-style-type: none"> - Therapy of peptic ulcer - Emetics & antiemetics - Drugs for diarrhea - Drugs for constipation 	5	
7-Drugs acting on blood & blood forming organs <ul style="list-style-type: none"> - Haematopoietic agents - Drugs affecting coagulation, fibrinolysis& platelet function - Antihyperlipidaemics 	7	
8- Diuretics	3	
9- Cardiovascular system <ul style="list-style-type: none"> - Antihypertensives - Antianginal - Drugs used in CHF - Antiarrhythmics 	10	
10- Chemotherapy of microbial disease <ul style="list-style-type: none"> - Introduction to chemotherapy - β-lactam antibiotics(Penicillins,cephalosporins& others) - Sulfonamides, trimethoprim - Quinolones & treatment of urinary tract infection - Aminoglycosides - Antitubercular and antileprotics - Broad spectrum and other antibiotics - Antiviral and antifungal drugs - Antiprotozoal drugs - Anthelmintic drugs 	29	
11- Endocrine system <ul style="list-style-type: none"> - Anterior and posterior pituitary - Corticosteroids - Thyroid hormones - Sex hormones - Hormones regulating calcium - Antidiabetic drugs 	15	
12- Anticancer chemotherapy	2	
13- Miscellaneous <ul style="list-style-type: none"> - Respiratory system - Immunosuppressants - Pharmacogenetics - Chelating agents and treatment of poisoning - Drug use in pregnancy, lactation, neonates, the elderly and disease states - Drug interactions 	10	
Total	148	

MODULE (II)

I. PRACTICAL & TUTORIAL SESSIONS:

Methods	Topic
Laboratory experiments	Topics according to schedule
Group discussion	All topics according to schedule

II. COURSE CONTENT:

Practical program	Number of hours
1- Laboratory experiments - Dosage forms of drugs - Factors influencing drug metabolism - The effects of drugs on the eye of rabbit - Effects of drugs on isolated rabbit jejunum - Study of dose- response curve relation - Drugs effective in experimental convulsion - Study of antiparkinsonian activity of atropine - Analgesic/anti-inflammatory activity of narcotic and non narcotic drugs - Langendroff' s isolated rabbit heart preparation	27
2- Clinical pharmacology - Therapy of anaemia - Therapy of peptic ulcer - Therapy of congestive heart failure - Therapy of hypertension - Therapy of diabetes mellitus	10
Total	37

TEACHING AND LEARNING FACILITIES

Spaces: (1) 2 lecture halls
(2) 2 laboratories with a white board at each.
(3) 2 discussion rooms.

STUDENT ASSESSMENT:

Allocated Marks: 300 *Marks in the form of:*

60 :midsession exam

165 : Final written examination

45 : Practical examination

30 :Oral examination

Attendance Criteria:

The faculty of Medicine by laws state that the student must attend 75% of the practical and discussion sessions to give him/her the allowance to attend the final examination.

- The minimum passing score is **180** marks (60%).

- Passing grades are Excellent \geq 85%, Very Good 75-85%, Good 65-74%, Fair 60-64%.

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Pharmacology department