



RKUNIVERSITY

SYLLABUS

Course Title	PHARMACOLOGY- III
Course Code	PH605
Course Credit	Lecture : 3
	Practical : 3
	Total : 6

Course Objectives

Pharmacology III will provide a detailed knowledge about the pharmacokinetics, pharmacodynamics, receptor mechanisms and mechanism of resistance, drug interactions, contraindications and adverse drug reactions of various drugs used for chemotherapy. It will also provide thorough information about pharmacology of drugs used in cardiovascular disorders as well as drugs acting on renal and hematopoietic system. The subject also will give basic idea about pharmacogenomics and pharmacogenetics.

Detailed Syllabus

Sr. No.	Name of Chapter & Details	Hours Allotted
	Section-I	
1	Chemotherapy a. General principles of chemotherapy b. Sulfonamides, Cotrimoxazole, Quinolones and other agents used in Urinary Tract Infections	23

	<ul style="list-style-type: none"> c. Beta lactam antibiotics d. Tetracycline and chloramphenicol e. Aminoglycoside antibiotics f. Macrolides g. Antitubercular drugs h. Antileprosy drugs i. Antifungal drugs j. Antiviral drugs k. Antiparasitic drugs (Drugs used in Malaria, Helminthiasis, Amoebiasis, Giardiasis, Trichomoniasis, Trypanosomiasis & Leishmaniasis) l. General principles of cancerous diseases and anticancer drugs 	
	Section-II	
2	Drugs acting on Cardiovascular and Renal System: <ul style="list-style-type: none"> a. Cardiac Glycosides and other Cardiotonics b. Diuretics and anti-Diuretics c. Antihypertensive Drugs d. Drugs used for coronary heart diseases (antianginal drugs and drugs for myocardial infarction) e. Anti-arrhythmic Drugs f. Drug therapy for hypercholesterolemia and Dyslipidemias 	18
3	Drugs Acting on the Hemopoietic System: <ul style="list-style-type: none"> a. Hematinics and Erythropoietin b. Drugs Affecting Coagulation, Bleeding and Thrombosis c. Plasma Expanders 	03
4	Pharmacogenomics and Pharmacogenetics	02

Pharmacology-III Practical

I. Bioassays and cell based assays

1. Introduction to general principles of bioassay, pharmacopoeial bioassays and biostandardization of various drugs
2. Introduction to cell based assay: Definition, Types, Advantages, limitations of cell based assay, and application to High throughput screening
3. Bioassay of Acetylcholine using Rat ileum by Graphical method
4. Bioassay of Acetylcholine using Rat ileum by matching method
5. Bioassay of Acetylcholine using Rat ileum by three point method
6. Bioassay of Acetylcholine using Rat ileum by four point method
7. Bioassay of Histamine using Guinea pig ileum by matching method
8. Bioassay of Atropine using Rat ileum by Graphical method
9. Bioassay of Mepyramine using Guinea pig by Graphical method

II. Demonstration Experiments

1. **Simulation Experiments on Cardiovascular System** : Effects of Various Drugs on Isolated Frog Heart.
2. Demonstration on the Effects of Various Drugs on the Rat blood Pressure

Instructional Method and Pedagogy:

- Lectures will be conducted with the aid of multi-media projector, black board, OHP etc.
- Assignments based on course content will be given to the students at the end of each unit/topic and will be evaluated at regular interval.
- Surprise tests/Quizzes/Seminar/Tutorials will be conducted.
- The course includes language practices such as Group Discussion, Interviews etc to develop the communication skills of the students.

Students Learning Outcomes:

1. Know about the basic concepts for chemotherapy including problems encountered with chemotherapy and applications of combination chemotherapy.
2. Know the selection and proper use of chemotherapeutic agents to prevent and treat respective infectious diseases.
3. Know the mechanism of action and effects of drugs on various organs of the body.
4. Know the detailed pharmacokinetics of each drug covered under each section.
5. Know the importance of proper selection of drug otherwise resulting in drug interactions and adverse drug reactions.

Text Books:

1. Essentials of medical pharmacology --K. D. Tripathi
2. Goodman Gilman A., Rall T.W., Nies A.I.S. and Taylor, P. Goodman and Gilman's The pharmacological basis of therapeutics, 12th edition, 2011. McGraw Hill< Pergamon Press.
3. Handbook of Experimental Pharmacology- Goyal R.K.
4. Handbook of Experimental Pharmacology- Kulkarni S.K.

Reference Books:

1. Lewis's Pharmacology – James Crossland – Churchill Livingstone
2. Lippincott's illustrated reviews of Pharmacology- Mycek Mary J.
3. Katzung, B.G. basic and Clinical Pharmacology, 8th edition, McGraw Hill New York, 11th Edn, 2009.
4. Satoskar R.S. et al – Pharmacolog and Pharmacotherapeutics. Popular Prakashan, Mumbai.
5. Pharmacology and Toxicology- Kale S.R.

6. Ghosh M.N. Essentials of Experimental Pharmacology. Scientific book Agency, Calcutta.

Additional Resources

- Soft copies of pharmacology and pathophysiology books are available on websites.
- Latest informations are available from scientific journals available in library and on websites.