



BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI
INSTRUCTION DIVISION
SECOND SEMESTER 2015-2016
Course Handout (Part - II)

Course Number : PHA G611

Course Title : Advanced Pharmacology

Instructor In-charge: Prof. R. Mahesh

Instructors : As in timetable

1. Course Description: Latest developments in the areas of Pharmacology & Therapeutics will be discussed under the course.

2. Scope and objective of the course:

The course intends to review the latest developments in Pharmacology & Therapeutics of all-important branches - including gene therapy. The course also emphasizes on the molecular aspects of pharmacology, its relations to recent development in therapeutics. Special emphasis is given to neuro-pharmacology and cellular basis for various pharmacological functions including neuro-prosthetics as well as bio-medical instrumentation.

3. Text Book: Goodman & Gilman's "The Pharmacological basis of Therapeutics; McGraw Hill, 11th edition, 2006. (12th edition is also available)

4. Reference Books:

- 1) Bertram G. Katzung "Basic & Clinical Pharmacology" McGraw-Hill/Appleton & Lange; 11th edition , 2009
- 2) Anthony J. Trevor, Bertram G. Katzung, Susan B. "Katzung's Pharmacology: Examination and Board Review "Master McGraw-Hill/Appleton & Lange; 6th edition, August , 2001
- 3) Mary Julia, Richard A. Harvey, Pamela C. Champe "Lippincott's Illustrated Reviews: Pharmacology" Lippincott Williams & Wilkins; 2nd edition, January, 2000
- 4) H. P. Rang; M. M. Dale, J. M. Ritter, Phyllis Gardner, "Pharmacology" Churchill Livingstone; 6th edition, 2007





5. Additional information:

- Emerging trends and updates have to be obtained from selected journals; hence it is mandatory to refer the journals and review articles .
- Students should go through the following journals regularly on current research in areas related to the course topics.

- Annual Reviews of Pharmacology series.
- Trends in Pharmacological sciences.
- Neuropharmacology
- Current Opinion in Pharmacology
- Drug Discovery Today: Disease Mechanism
- European Neuropsychopharmacology
- Biochemical Pharmacology
- Vascular Pharmacology
- Pharmacology Biochemistry and Behavior
- Indian Journal of Pharmacology

6. Course Plan

Lecture No.	Topic to be covered	Learning Objectives	Text Book/Ref. text book: Chap/ sec
1-3	ADME, Principles of Pharmacology, Pharmacodynamics	Introduction to Pharmacokinetics and Pharmacodynamics	TB and Class notes
4-7	Receptor, scope Classification, identification	Principle of drug action, dose response relationships Drug Interaction. GPCR, Ion Channels.	TB; Ref. 4
8-11	Signal transduction, Secondary Messengers	Receptor -ligand interactions, signal pathways, putative-neurotransmitters, histaminergic, serotonergic, cholinergic, adrenergic, dopaminergic systems	TB; Ref.1, 2, 3 and 4; Class notes
12-15	Principle of toxicology	Toxicology and its relevance to health and toxicology studies.	Class notes
16-19	Cardio vascular and renal Pharmacology	Pharmacotherapy of cardiovascular disorders including hypertension, congestive cardiac failure, angina pectoris, myocardial infarction and diuretics	TB; Ref.1, 2, 3 and 4
20-23	Principles of Psychopharmacology	Pharmacotherapy of epilepsy, depression, anxiety, schizophrenia, mania	TB; Ref.1and 4; Class notes





24-27	Metabolic and respiratory Disorders	Diabetes mellitus Therapeutic advances in Asthmas and COPD	TB; Ref.1 and 4; Class notes
28-30	Digestive System	Pathophysiology of ulcers; Pharmacotherapy of diarrhea.	Ref.1 and 4 and Class notes
31-33	Infectious diseases	Recent advances in treatment of infectious disease and in particular Nosocomial infections, strategies to combat microbial resistance and drugs in the pipeline	Class notes Ref. 4
	Pharmacogenetics and Gene therapy	Role of Pharmacogenetics, gene therapy in health.	SELF STUDY
34-35	Introduction to bio-medical instrumentation and neuro-prosthetics	Sensory, motor and cognitive prosthetics, bio-medical aids in rehabilitation therapy.	Class notes

7. Evaluation Scheme:

Component	Weightage (%)	Duration	Date & Time	Remarks
1. Mid-Sem test	30	90 min.	16/3 4:00- 5:30 PM	CB
2. **Practicum exp., *Assignment(s), Quizzes, etc.	35	-----	Continuous	-----
3. Compre. exam.	35	180 min	9/5 AN	CB and/or OB

CB: Closed Book ; OB: Open Book

* Home Assignments, Quiz(zes) etc. will be based on advanced topics in pharmacology & pharmacotherapy. Assignment(s) may be practical / theory oriented for which two copies of type-written report in a standard format should be submitted as per deadline(s) that would be announced, therein. It may also include a viva and or a seminar presentation. However all assignments /reports would be completed by **24th April, 2016**. It is necessary that all students stick to time schedule and DO NOT postpone submission of assignments/reports. Quizzes may be closed or Open book type and may be conducted with or without prior information and hence students are advised to come prepared to every class on topics covered in earlier classes.





** Details of Practicum experience will be discussed in class.

As this is an advanced level course, more stress will be laid upon latest information available for different primary and secondary sources such as latest edition of books, journals, articles published and research findings reported in standard literature mentioned above. The chapters mentioned in the text-books would give basic information related to pharmacology whereas the class room discussions would give latest developments and their applications in the field of therapeutics. Hence only reference to text / reference material would not suffice and students are advised to take a note of the same.

Continuous assessment may include quiz(zes)#, Laboratory Day to Day work, Viva-Voce, Home assignment, and Lab. component including Lab. Compre., etc.

* Practicum experience (Lab.component), Assignment(s) may be practical / theory oriented, for which a proper report in a standard format should be submitted as per deadline(s) that would be announced. It may also include a viva and or seminar presentation(s).

Quiz(zes) may be conducted as a part of evaluation component, at random, during contact hours including lecture, tutorial hours, as convenient, with/without prior intimation and sometimes outside class contact hours (for both theory and practical) and hence it is expected that the students come prepared to every class on topics covered in earlier contact hours. Students are also requested to refresh their knowledge in basic pharmacology and physiology.

1. Mid-Sem. Grading would be announced once at least 30-40 % evaluation components are completed.
2. For all evaluation components, information given in text books and reference books in the same order will be considered as correct. All evaluation components are equally important, irrespective of weightage. Hence, students failing to attend or absenting themselves in one or many of the evaluation components may become ineligible for obtaining a valid grade at the end of the semester. Attendance in lectures, tutorials and practicum experience are all equally important as they are all integral components of learning, irrespective of weightage.
3. Students are strongly advised to keep away from absenting themselves from all aforementioned contact sessions.
4. **Reading Assignments:** Students are advised to read, collect additional information on the above mentioned topics as per given schedule.





5. **Chamber consultation hours:** To be announced in class.
6. **Notices:** Notices concerning the course will be displayed on the pharmacy group notice board only

Make-Ups: Make-Ups are not given as a routine. It is solely dependent upon the GENUINENESS OF THE CIRCUMSTANCES under which a student fails to appear in a scheduled evaluation component. In such circumstances, prior permission should be obtained from the Instructor-in-Charge. In no case the make-up letter be slipped inside the chamber of the Instructor-In-Charge. The decision of the Instructor- in-Charge will be final.

Instructor - in -Charge
PHA G611

