

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE-PILANI, HYDERABAD CAMPUS

FIRST SEMESTER 2023-2024

Course Handout

Date: 11/08/2023

In addition to Part I (General Handout for all courses appended to the time table) this portion gives further specific details regarding the course.

Course No. : PHA F311
Course Title : Pharmacology and Toxicology (Part-1)
Instructor in charge : Onkar Kulkarni
Team of Instructors : Ashutosh Mahale, Lavanya S

1) Scope & Objective of the Course:

This course will make students understand the pharmacology of important classes of drugs including their mechanism of action, therapeutic uses, side effects, toxic manifestations, indications and contraindications. This course is intended to impart the knowledge regarding the concepts of actions of drugs on various systems of the human body as well as to understand the effect of cellular process like metabolism, elimination and cellular permeability on the fate of the drug molecule inside the human body. The course covers mechanism of action, therapeutic uses, side effects, and contraindications of the drugs, which are commonly employed in therapeutics. The course also intends to make aware the students the recent happenings in the field of molecular Pharmacology, various screening techniques and novel treatments in the field of therapeutics.

Learning Outcomes (course benefits): Students who have undergone the course are expected to

- Understand the molecular pharmacology of drugs used for the treatment of various diseases
- Understand the rationale behind the side effects associated drug molecules
- Explain the rationale behind the observed drug interactions

2) Text book:

1. Tripathi KD, Essentials of Medical Pharmacology, Sixth edition, Jaypee brothers, New Delhi, 2008

Reference Books:

1. Katzung BG, Basic and Clinical Pharmacology, 12th edition, Prentice Hall, London, 2001

2. Goodman & Gilman's The Pharmacological Basis of Therapeutics, by JG Hardman (Editor), 10th edition, McGraw-Hill Publishing Co, 2001.

3) Course Plan:

Lect. No.	Learning Objectives	Topics to be covered	References
1-9	1. To understand the scope and role of pharmacology in drug discovery 2. To understand the mechanism of drug receptor interaction 3. To understand the pharmacokinetic parameters affecting the fate of drug within the body	Introduction, Scope and important terms of Pharmacology and Toxicology	T1-Sec1, R1-Sec1, R2-Sec1
		Mechanisms of drug action	
		Introduction to Pharmacokinetics	
		Pharmacodynamics	
10-24	To understand the mechanism, side effects, drug interactions and therapeutic uses of drug molecules targeting autonomic nervous system	Introduction to nervous system	T1-Sec2, R1-Sec2, R2-Sec2
		Cholinergic drugs and cholinergic blockers	
		Adrenergic drugs and their blockers	
		Ganglionic and Neuromuscular blockers	
25-37	To understand the mechanism, side effects, drug interactions and therapeutic uses of drug molecules targeting central nervous system	Introduction	T1-Sec7, R1-Sec5, R2-Sec2
		General and Local anesthetics	
		Anxiolytic, sedatives	
		Antipsychotic and antidepressants	
		Anticonvulsants	

		Neurodegenerative diseases, Anti-Parkinson agents	
38-40	To understand the mechanism, side effects, drug interactions and therapeutic uses of drug molecules targeting small molecule mediators of inflammation (autocoids)	Autacoids and antihistaminic drugs	T1-Sec3, R1-Sec4, R2-Sec5

Particulars of Experiments	No of Practical Sessions
<ul style="list-style-type: none"> Understanding the protocol and theory of pharmacological assays using animal simulator software Demonstration of animal handling and routes of drug administration 	12

4) Evaluation Scheme:

Component	Duration	Weightage	Date	Time
Pre Mid-term Quiz	15 mins	7 %	Surprise quiz (CB)	
Mid-term Test	90 mins	30 %	09/10 - 4.00 - 5.30PM	As announced in the timetable (50% open book)
Post Mid-term Quiz	15 mins	8 %	Surprise quiz (CB)	
Compre. Exam.	180 min	40 %	07/12 AN	As announced in the timetable (50% open book)
Day to day work (Includes marks for Attendance, Lab Record & Viva-voce) and lab compre	-	15 %	Lab Compre dates will be announced in the class (CB)	

5) Mid-Semester Grading: Mid-semester grading will be announced just after Mid semester exam in the on the basis of marks secured in Pre-mid sem quiz, lab quiz and mid semester examination (up to 42 % weightage will be covered)

6) Make-up: Prior approval or intimation to take a make-up is mandatory. It is solely at the discretion of the instructor-in-charge, depending upon the genuineness of the circumstances, to allow or disallow a student to appear for a make-up evaluation component. No makeup will be granted for Assignments/Quizzes under any circumstances.

7) Grading Procedure:

- Grading will be done by “bunching” procedure. Total marks obtained by the students will be arranged in descending order, ‘bunches’ will be identified and grades awarded accordingly. Fine grading system (A, A-, B, B-....) will be followed.
- It is not mandatory for the instructor-in-charge to award all the grades (A to E); subjective judgment will be used for awarding the grades.
- As specified in Handout – Part I, appended to the timetable, the instructor in-charge reserves the right to award a NC report in case the student does not make himself/herself available for any of the evaluation component mentioned above.
- Borderline cases during grading will be judged on the basis of regularity to classes and consistency or progress in the performance in evaluation components.

8) Chamber Consultation Hours: To be announced in class.

9) Notices: All the notices pertaining to this course will be displayed only on CMS

10. Academic Honesty and Integrity Policy: Academic honesty and integrity are to be maintained by all the students throughout the semester. Any form of academic dishonesty would lead to serious actions.

Instructor-in-charge
PHAF311