



# GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Pharmacy

Subject Code: BP810TT

SEMESTER: VIII

Subject Name: Experimental Pharmacology

**Scope:** This subject is designed to impart the basic knowledge of preclinical studies in experimental animals including design, conduct and interpretations of results.

## Objectives

Upon completion of the course the student shall be able to,

- Appreciate the applications of various commonly used laboratory animals.
- Appreciate and demonstrate the various screening methods used in preclinical research
- Appreciate and demonstrate the importance of biostatistics and research methodology
- Design and execute a research hypothesis independently

## Teaching scheme and examination scheme:

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	Theory		Practical	
				External	Internal	External	Internal
3	1	0	4	80	20	0	0

Sr No	Topics	Teaching Hrs
1.	<p><b>Laboratory Animals:</b> Study of CPCSEA and OECD guidelines for maintenance, breeding and conduct of experiments on laboratory animals</p> <p>Common lab animals: Description and applications of different species and strains of animals. Popular transgenic and mutant animals.</p> <p>Techniques for collection of blood and common routes of drug administration in laboratory animals, Techniques of blood collection and euthanasia.</p>	7
2.	<p><b>Introduction to preclinical studies:</b> Dose selection, calculation and conversions, preparation of drug solution/suspensions, grouping of animals and importance of sham negative and positive control groups. Rationale for selection of animal species and sex for the study</p>	3
3.	<p><b>Preclinical screening models</b></p> <p><b>Preclinical screening models for drugs acting on CNS :-</b> analgesic, antipyretic, anti-inflammatory, general anesthetics, sedative and hypnotics, antipsychotic, antidepressant, antiepileptic, nootropics anti Parkinsonism drugs, anti-Alzheimer drug</p> <p><b>Preclinical screening models for drugs acting on eye and local anesthetics</b></p>	12
4.	<p><b>Preclinical screening models for drugs acting on ANS :</b> sympathomimetics, sympatholytics, parasympathomimetics, parasympatholytics, skeletal muscle relaxants</p>	5
5.	<p><b>Preclinical screening models for drugs acting on CVS :-</b> antihypertensives, diuretics, antiarrhythmic, antidyslipidemic, anti aggregatory, coagulants, and anticoagulants</p> <p><b>Preclinical screening models for antiulcer, antidiabetic, anticancer and antiasthmatic activities</b></p>	13



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6.	<b>Research methodology and Bio-statistics</b> Selection of research topic, review of literature, research hypothesis and study design Pre-clinical data analysis and interpretation using Students't' test and One-way ANOVA. Graphical representation of data	5
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### Recommended Books (latest edition):

1. Fundamentals of experimental Pharmacology-byM.N.Ghosh
2. Hand book of Experimental Pharmacology-S.K.Kulakarni
3. CPCSEA guidelines for laboratory animal facility.
4. Drug discovery and Evaluation by Vogel H.G.
5. Drug Screening Methods by Suresh Kumar Gupta and S. K. Gupta
6. Introduction to biostatistics and research methods by PSS Sundar Rao and J Richard