B. PHARMACY
Syllabus ∙ Semester-8

Elective subject-8 name with code: 13PH0810 Experimental Pharmacology

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

Course Outcomes
Upon completion of the course, the student shall be able to
1. Appreciate the applications of various commonly used laboratory animals.
2. Appreciate and demonstrate the various screening methods used in preclinical research.
3. Appreciate and demonstrate the importance of biostatistics and research methodology.
4. Design and execute a research hypothesis independently.

Teaching and assessment scheme

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<thead>
<tr>
<th>Teaching Scheme (Hours)</th>
<th>Theory</th>
<th>Tutorial</th>
<th>Practical</th>
<th>Credits</th>
<th>Theory/ Tutorial Marks</th>
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Teaching hours: 45 Hours

Unit-1
Laboratory animals: Study of CPCSEA and OECD guidelines for maintenance, breeding and conduct of experiments on laboratory animals Common lab animals: Description and applications of different species and strains of animals. Popular transgenic and mutant animals. Techniques for collection of blood and common routes of drug administration in laboratory animals, Techniques of blood collection and euthanasia.

Unit-2
Introduction to preclinical studies: Dose selection, calculation and conversions, preparation of drug solution/suspensions, a grouping of animals and importance of sham negative and positive control groups. The rationale for the selection of animal species and sex for the study.

Unit-3
Preclinical screening models for drugs acting on CNS: Analgesic, antipyretic, anti-inflammatory, general anaesthetics, sedative and hypnotics, antipsychotic, antidepressant, antiepileptic, nootropics anti Parkinsonism drugs, anti-Alzheimer drug Preclinical screening models for drugs acting on the eye and local aesthetics.

Unit-4
Preclinical screening models for drugs acting on ANS: Sympathomimetics, sympatholytics, parasympathomimetics, parasympatholytics, skeletal muscle relaxants.

Unit-5
Preclinical screening models for drugs acting on CVS: Antihypertensives, diuretics, antiarrhythmic, anti-dyslipidemic, antiaggregatory, coagulants, and anticoagulants Preclinical screening models for antiulcer, antidiabetic, anticancer and antiasthmatic activities.

Unit-6
Research methodology and bio-statistics: 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.

Tutorials will be based on the above syllabus.

Teaching hours: 15 Hours

Recommended references (Latest edition)
3. CPCSEA guidelines for laboratory animal facility.
4. Drug discovery and Evaluation by Vogel H.G.
6. Introduction to biostatistics and research methods by PSS Sundar Rao and J Richard.