| Course Code | Course Title | Teaching Load | | | Marks | | Exam (hrs) | | Credits |
|---|---|---|---|---|---|---|---|---|---|
| | | L | T | P | Int. | Ext. | Int. | Ext. | |
| BP810ET | Experimental Pharmacology | 3 | 1 | - | 25 | 75 | 1 | 3 | 4 |

**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

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.

**Module 01** **08Hours**

**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**

- Common routes of drug administration in laboratory animals.
- Techniques of blood collection and euthanasia.

**Module 02** **11 Hours**

**Preclinical Screening Models**

**Introduction**

- 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.

**Study of Screening Animal Models For**

- Diuretics, nootropics, anti-Parkinson's, antiasthmatics

**Preclinical screening models**

- CNS activity- analgesic, antipyretic, anti-inflammatory, general anaesthetics, sedative and hypnotics, antipsychotic, antidepressant, antiepileptic, anti-parkinsonism, alzheimer's disease.

**Module 03** **08 Hours**

**Preclinical Screening Models for ANS Activity**

- Sympathomimetics, sympatholytics, parasympathomimetics, parasympatholytics.
- Skeletal muscle relaxants.
- Drugs acting on eye.
- Local anaesthetics.

**Module 04** **08 Hours**

**Preclinical Screening Models for CVS Activity**

- Antihypertensives, diuretics, antiarrhythmic, antidyslepidemic, anti aggregatory, coagulants, and anticoagulants.

**Preclinical Screening Models for Other Important Drugs**

- Antiulcer, antidiabetic, anticancer and antiasthmatics.

**Module 05** **10 Hours**

**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.
- One-way ANOVA.
- Graphical representation of data.

**Recommended Books (latest edition)**

1. Fundamentals of experimental Pharmacology-by M.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.