

## **PHL 512: ADVANCED PHARMACOLOGY-I ( 2 +1)**

**Course Code: PHL 512**

**Course Name: ADVANCED PHARMACOLOGY**

### **Course Description:**

This course is designed to study in depth the mechanism of action of drugs that mimic or antagonize the sympathetic and parasympathetic nervous systems. Concepts of receptor activation and neurohumoral transmission will be discussed. Techniques useful in evaluating the effects of drugs will be studied. A portion of the course will be devoted to laboratory work and guided readings.

### **Course Contents:**

#### **Hours**

- **General principles:** 2  
Origin of the receptor theory - binding energy and the excitation of receptors- how fast do drugs work - desensitization, receptors and calcium signalling, et...
- **Advanced concepts of autonomic nervous system:** 4  
Physiological considerations - recent approach to classification - identification of autonomic receptors functionally and using radio ligand techniques.
- **The autonomic receptors:** 8
  - The acetylcholine receptor.
  - The adrenergic receptors:
    - &  $\beta$ -receptors - receptors subtypes chemical and functional characterization.
  - Dopaminergic receptor.
  - Purinergic receptor.
- **The chemical transmitters:** 5  
Actions of hormones and neurotransmitters at plasma membrane - presynaptic receptors and control of release - release, uptake, depletion and repletion of transmitters.
- **The pharmacology of cyclic AMP.** 2

- **Therapeutic applications of the autonomic drugs.** 5
- **New perspectives on the mode of action of drugs influencing the autonomic transmitters.** 2

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**Total Hours: 28**

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### **PRACTICALS:**

- | <b><u>No.</u></b> | <b><u>Experiment</u></b>  |
|-------------------|---|
| 1.                | Isolated field stimulated G.P. ileum.                                 |
| 2.                | Isolated innervated rabbit jejunum reserpinized<br>(Finkelman's prep. |
| 3.                | Isolated rat stomach fundus.  |
| 4.                | Isolated atria.   |
| 5.                | Isolated G.P. tracheal chain.   |
| 6.                | Isolated rabbit aorta.  |
| 7.                | Isolated rat's phrenic hemidiaphragm.                                 |
| 8.                | Isolated G.P. vas deferens.   |
| 9.                | Four-point assay using isolated guinea pig ileum.                     |
| 10.               | Two Practical Exams.  |