

COMMON POOL OF GENERIC ELECTIVES (GE) COURSES
Offered by Department of Zoology
Category-IV

GENERIC ELECTIVES (GE-1): Human Physiology

Credit distribution, Eligibility and Pre-requisites of the Course

| Course title & Code | Credits | Credit distribution of the course | | | Eligibility criteria | Pre-requisite of the course | Department offering the course |
|-------------------------|---------|-----------------------------------|----------|---------------------|-----------------------|-----------------------------|--------------------------------|
| | | Lecture | Tutorial | Practical/ Practice | | | |
| Human Physiology | 4 | 2 | - | 2 | 12 th Pass | Nil | Zoology |

Learning Objectives

This course offers an overview of the concepts of normal biological functions in the human body. The fundamentals of human physiology and histological structures will be correlated. The concept of homeostasis in response to changes in the external environment will be introduced. Further, students will be provided with knowledge that can be applied in everyday life. The students will be encouraged to pursue further studies in physiology and related fields as well as multidisciplinary subjects that require an understanding of the physiology of humans.

Learning outcomes

Upon completion of the course, students will be able to:

- Understand the principles of normal biological function in the human body.
- Outline basic human physiology and correlate it with histological structures.
- Understand the homeostasis in animals in response to changes in their external environment.

SYLLABUS OF GE-1

Unit I: Tissues (05 Hours)

Types of Tissues; Structure and Function of Epithelial, Connective, Muscular and Nervous tissues.

Unit II: Functioning of Excitable Tissue (Nerve and Muscle) (05 Hours)

Propagation of nerve impulse (myelinated and non-myelinated nerve fibre); Mechanism of muscle contraction (Sliding filament theory).

Unit III: Digestion and Absorption of Food (05 Hours)

Structure and function of digestive system; Digestion and absorption of carbohydrates, fats and proteins.

Unit IV: Respiratory Physiology (04 Hours)

Structure and function of respiratory tract and lungs; Ventilation, External and Internal respiration; Transport of oxygen and carbon dioxide in blood.

Unit V: Cardiovascular System (04 Hours)

Structure of heart, Cardiac cycle, Composition of blood

Unit VI: Renal Physiology (03 Hours)

Functional anatomy of kidney

Unit VII: Reproductive Physiology (04 Hours)

Structure of testis and ovary; Spermatogenesis and Oogenesis.

Practical component (if any) (60 Hours)

1. Preparation of temporary mount of neurons and blood cells (blood film preparation).
2. Preparation of haemin and haemochromogen crystals.
3. Haemoglobin estimation using Sahli's haemoglobinometer.
4. Determination of ABO Blood group.
5. Recording of blood pressure using a Sphygmomanometer.
6. Examination and detailed study of permanent histological sections of mammalian Stomach, Duodenum, Liver, Lung, Kidney, Pancreas, Testis and Ovary.

Essential readings

1. Tortora, G.J. and Derrickson, B.H. (2012). Principles of Anatomy and Physiology. XIIIth Edition, John Wiley and Sons, Inc.
2. Widmaier E, Raff H and Strang K. (2013). Vander's Human Physiology: The Mechanism of Body Functions. XIIIth Edition, McGraw-Hill Education.
3. Guyton, A.C. and Hall, J.E. (2011) Textbook of Medical Physiology. XII Edition, Harcourt Asia Pvt. Ltd/ W.B. Saunders Company.
4. Kesar, S. and Vashisht, N. (2007) Experimental Physiology. Heritage Publishers.
5. Prakash, G. (2012) Lab Manual on Blood Analysis and Medical Diagnostics. S. Chand and Company Ltd.

GENERIC ELECTIVES (GE-2): Nature and Wildlife Studies

Credit distribution, Eligibility and Pre-requisites of the Course

| Course title & Code | Credits | Credit distribution of the course | | | Eligibility criteria | Pre-requisite of the course | Department offering the course |
|-----------------------------|---------|-----------------------------------|----------|---------------------|-----------------------|-----------------------------|--------------------------------|
| | | Lecture | Tutorial | Practical/ Practice | | | |
| Nature and Wildlife Studies | 4 | 2 | - | 2 | 12 th Pass | Nil | Zoology |

Learning Objectives