

## ANIMAL DIVERSITY - NONCHORDATES

Programme: B.Z.C

Year: I

Semester: 1

Course: (Core)

Credits: 3

Hours: 60

### COURSE OBJECTIVES

#### Objectives

- To understand the taxonomic position of protozoa to hemichordata
- To understand the origin and evolutionary relationship of different phyla from protozoa to hemichordate.
- To understand the origin and evolutionary relationship of different phylum from annelids to hemichordates.

#### Course Outcomes

- Explain the general characters of each phylum and their classification and identify animals using different taxonomical strata.
- Understand the phylogeny of life, connecting link between different phyla and appreciate the diversity of fauna.
- Describe the essentials of each body part of animals and their functioning.
- Able to appreciate the process of evolution (unicellular cells to complex, multicellular Organisms)
- Understand the basis of life processes in the non-chordates.

### PROGRAM OUTCOMES (PO) - B.Z.C

**A science graduate will be able to:**

1. **Scientific knowledge:** Apply the knowledge of basic principles of biological sciences and fundamentals of chemical sciences specialization to the solution of scientific problems.
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3. **Design/development of solutions:** Design solutions for complex scientific problems for various case studies and experimental studies regarding the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern scientific and IT tools including prediction and modeling to complex scientific activities with an understanding of the limitations.
6. **The science and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the scientific practice.
7. **Environment and sustainability:** Understand the impact of the scientific solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
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12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

### **PROGRAM SPECIFIC OUTCOMES (PSO)**

**At the end of the program, the student**

**PSO 1:** should be able to understand the concepts at advanced level of Botany, Zoology and Chemistry and their applications in the field of scientific research and other relevant areas.

**PSO 2:** Should be able to Perform procedures as per laboratory standards in the area Taxonomy, physiology, Ecology, Cell biology, Genetics, Applied zoology, Applied botany, Clinical science, Tools and Techniques of zoology and botany, Toxicology, Entomology, Biochemistry, Fish biology, Biotechnology, Immunology, and Research methodology.

**PSO 3:** Should be able to understand the concepts at advanced level of chemistry and their applications in the field of scientific, research laboratory and other relevant areas.

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## ANIMAL DIVERSITY - CHORDATES

Programme: B.Z.C  
Course: (CORE)

Year: I  
Credits: 3

Semester: 2  
Hours:60

### objectives

- To understand the animal kingdom.
- To understand the taxonomic position of Protochordata to Mammalian.
- To understand the general characteristics of animals belonging to Fishes to Reptilians.
- To understand the body organization of Chordata.
- To understand the taxonomic position of Protherian mammals.

### Course Outcomes

- Explain the general characters and classifications of chordates
- Understand Mammals with specific structural adaptations
- Understand the significance of dentition and evolutionary significance
- Understand the origin and evolutionary relationship of different phyla from Prochordata to mammalian.
- Understand the difference between various species and the evolution of complexity in each system.
- Describe the diversity in form, structure and habits of vertebrates.

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DEPARTMENT OF ZOOLOGY

**CYTOLOGY, GENETICS AND EVOLUTION**

Programme: B.Z.C

Year: II

Semester: 3

Course: (CORE)

Credits: 3

Hours: 60

**Objectives**

- To understand the origin of cell and distinguish between prokaryotic and eukaryotic cell.
- To understand the role of different cell organelles in maintenance of life activities.
- To provide the history and basic concepts of heredity, variations and gene interaction.
- To enable the students distinguish between polygenic, sex-linked, and multiple allelic modes of inheritance.
- To acquaint student with basic concepts of molecular biology as to how characters are expressed with a coordinated functioning of replication, transcription and translation in all living beings.
- To provide knowledge on origin of life, theories and forces of evolution.

**Course Outcomes:**

- Develop deeper understanding of what life is and how it functions at cellular level.
- Describe the fine structure and function of cell organelles and composition of prokaryotic and eukaryotic cells
- Understand the role of genes in transmission of parental characters and the disease caused due to its defects.
- Understood the theories of evolution and highlighted the role of evidences in support of evolution and origin of life
- Identify different Geographical Regions with its flora, fauna, and Wallace's line that separates them and appreciate their richness.

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DEPARTMENT OF ZOOLOGY

**PHYSIOLOGY, CELLULAR METABOLISM AND EMBRYOLOGY**

Programme: B.Z.C

Year: II

Semester: 4

Course: (CORE)

Credits: 3

Hours: 60

**Paper: 4(A) Animal Physiology, Cellular Metabolism and Embryology**

**Objectives :**

- To achieve a thorough understanding of various aspects of physiological systems and their functioning in animals.
- To understand the disorders associated with the deficiency of hormones
- To demonstrate a thorough knowledge of the intersection between the disciplines of Biology and Chemistry.
- To provide insightful knowledge on the structure and classification of carbohydrates, proteins, lipids and enzymes
- To make students gain proficiency in laboratory techniques in biochemistry and orient them to apply the scientific method to the processes of experimentation and hypothesis testing

**Course Outcomes:**

- Understand the functions of important animal physiological systems including digestion, cardiorespiratory and renal systems.
- Understand the muscular system and the neuro-endocrine regulation of animal growth, development and metabolism with a special knowledge of hormonal control of human reproduction.
- Describe the structure, classification and chemistry of Biomolecules and enzymes responsible for sustenance of life in living organisms
- Describe the key events in early embryonic development starting from the formation of gametes upto gastrulation and formation of primary germ layers.

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DEPARTMENT OF ZOOLOGY

**IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY**

Programme: B.Z.C

Year: II

Semester: 4

Course: (CORE)

Credits: 3

Hours: 60

**COURSE OUTCOMES (CO) - IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY**

<b>CO1</b>	To get knowledge of the organs of Immune system, types of immunity, cells and organs of immunity.
<b>CO2</b>	To describe immunological response as to how it is triggered (antigens) and regulated(antibodies)
<b>CO3</b>	Understand the applications of Biotechnology in the fields of industry and agriculture including animal cell/tissue culture, stem cell technology and genetic engineering .
<b>CO4</b>	To appreciate the body's ability to maintain homeostasis
<b>CO5</b>	To enlighten students about the intricate relationship between the environment and all forms of life
<b>CO6</b>	To understand anticipate, analyse and evaluate natural resource issues and action a lifestyle that conserve nature

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