

## DEPARTMENT OF ZOOLOGY

### B.Sc Zoology

#### PROGRAMME OUTCOMES

##### Knowledge updating:

Zoology is one of the oldest branches of basic natural sciences which deals with study of animals and issues related to them. After completing B.Sc Zoology, students will understand;

**PO1:** students will be more equipped to learn and know about different biological systems, their coordination and control as well as evolution, behavior and biological roles of the animals in the ecosystem.

**PO2:** Utilize their knowledge to solve the issues related to animal sciences.

**PO3:** Moreover, they will be able to qualitatively and quantitatively analyse evolutionary parameters using various bioinformatics and computational tools used in modern sciences.

**PO4:** Students can apply their knowledge to find the further research issues and work in the knowledge gaps. Awareness about the present issues at global and national scale related to environment and conservation will sensitize students and mould them to responsible citizens.

##### Skill outcomes:

**PO5:** The programme will cater the basic curiosity of students about the animal sciences and help them to find their career goals.

**PO6:** After understanding the subject they will be capable of finding ample opportunities to explore different career avenues.

**PO7:** Candidates may find jobs as Ethologists, Conservationist, Wildlife Biologist, Zoo Curator, Wildlife Educator, Zoology faculty, Forensic experts, Lab technicians, self dependent in terms of higher education and free lancing etc. Candidates find opportunities in government departments, environmental agencies, universities, colleges, biotechnological, pharmaceutical, environmental/ecological fields.

**PO8:** They will inculcate good laboratory practices in students and to train them about proper handling of lab instruments.

**PO9:** Acquired skills in diagnostic testing, haematology, histopathology, staining procedures etc. used in clinical and research laboratories will provide them opportunity to work in diagnostic or research laboratory

**PO10:** Students undertaking skill enhancement courses like aquaculture, sericulture and apiculture will inculcate skills involved in rearing fish, bees and silk moth which would help them in starting their own ventures and generating self employment making them successful entrepreneurs.

## PROGRAMME SPECIFIC OUTCOMES

**PSO1:** Understanding basic biology, ecosystem, and basic concepts of nature, ecology, cell biology, biology and zoology as whole.

**PSO2:** To analyze and bridge between various components of living (animals) and non living (abiotic factors).

**PSO3:** To understand basic laboratory methods for taxonomy, histology, physiology, cell biology, economic zoology, fisheries, field methods, abiotic analysis as well as research methodology.

**PSO4:** Understanding applied zoology and economic zoology for daily living.

**PSO5:** Develop insight to understand and address towards environmental issues of the nation and participating in nature drives.

## COURSE OUTCOMES

Course component	Outcome
<b>Taxonomy: Chordate and non chordate</b>	Student from first to last year study chordate and non chordate taxonomy in practical as well theory at various academic levels. Students will be able to understand the basic principles of taxonomy and systematic. They will also learn to identify the invertebrates and vertebrate animals to their species level and will cater their curiosity on field.
<b>Ecology and Ecosystems</b>	Here again students learn the basic concepts of ecology and environment from basic level to detailed understanding at their third year. Moreover, they will learn about various ecosystems like Grassland and forest ecosystem, marine ecosystem, Aquatic ecosystem, Arid areas and their uniqueness of biota. By the end students will be able to understand biological and ecological interactions and functioning.
<b>Cell biology and genetics.</b>	Students will understand the structures, positions and functions of various cell and all cellular organelles in details. They will acquire knowledge about chromosomes and cell divisions, both mitosis and meiosis. They will also know about cell signalling and cancers. They will know about vital processes of life like programme cell death. Students will learn genetics at all the three years to different level. They will learn about basic concepts of genetics, mendelian principal, crossing over mechanisms, chromosome mutations and various genetics studies with experiment examples.
<b>Biochemistry &amp; Molecular biology</b>	Students will understand the basic and fundamental biochemistry of carbohydrates, proteins, lipids and nucleic acids with theory and methods of detection in laboratory. They will also understand the nature, mechanism, and kinetics of enzyme action. Some instrumentation such as microscopy, centrifugation, spectrophotometry etc will also be learnt. The student will

	learn about modern biotechnology basics, Structure of DNA, RNA and chromosomes and their abbreviations.
<b>Comparative Anatomy Of Vertebrates and invertebrates</b>	Students will understand the structures of different systems such as, integumentary, skeletal, digestive, respiratory, circulatory, urinogenital, nervous and sensory organs in comparative way among the vertebrate groups using different animal type specimen. They will understand evolutionary phenomena of development of comparative anatomy of heart, kidney and brain.
<b>Physiology</b>	Students will know the physiology of digestion, respiration, circulation, excretion and adaptation
<b>Evolution and developmental biology</b>	The students will learn about evolutionary process and evolution of tetrapods. They will learn about Darwin theories and various evolutionary theories. Students will learn the different aspects of early, late and post embryonic developments., fertilization, mutation, twins, placenta etc.
<b>Animal behavior</b>	Students will know in details about types of behaviours, survival strategies, reproduction, learning, mimicry. They will learn important behavioural events like migration, adaptations in different ecosystems and their concepts.
<b>Biodiversity, And Wild Life Conservation</b>	Student will be learning the various issues related to Biodiversity. They will also study important fauna of State and nation, zoogeography, IUCN and Indian Wildlife Act. They will also able to use various tools used in field biology. Course part will also include research methodology and knowhow to write a research proposal and dissertation report. It will also address various issues like air, water, soil pollution as well as global challenges like climate change, sea level rise, ozone depletion etc.