

GOVERNMENT DEGREE COLLEGE KHAIRATABAD
DEPARTMENT OF ZOOLOGY
Program Outcomes, Program Specific Outcomes and Course Outcomes of
B.Sc. in Zoology

BSC ZOOLOGY PROGRAM

B.Sc. in Zoology is an undergraduate Program in Zoology. Zoology is the branch of science which deals with the study of animal kingdom including the evolution, structure, Physiology, classification, embryology, habits, habitat and distribution of all the animals. The B.Sc. Zoology course is premeditated to introduce students to the study of zoology at the organismal and organ function levels. The theoretical part of the program deals with the general principles of classical as well as modern zoology. The program provides the student with an introduction to the recent advances in zoology in the areas of systematic, evolution, reproduction, development, animal diversity, biochemistry, cytology and animal ecology. This course is offered for candidates who are interested in the study of animals. The minimum time required to complete the course is three years.

PROGRAM OUTCOMES OF B.SC., ZOOLOGY

After successfully completing B. Sc. (Zoology) Programme students will be able to:

- **PO1.** Communicate scientific information through effective formal and informal methods generally used in sciences.
- **PO2.** Conduct basic scientific research and provide inputs for societal benefits.
- **PO3.** Develop competence in basic sciences and in the content of the specific courses that constitute the principal knowledge of their degree
- **PO4.** Compare and contrast the characteristics of animals that differentiate them from other forms of life.
- **PO5.** Acquire the skills in handling scientific instruments, planning and performing in laboratory experiments.

- **PO6.** Understand and be aware of relevant theories, paradigms, concepts and principles of zoology.
- **PO7.** Understand the structure and functions of cell types.
- **PO8.** Acquire time management and self-management skills.
- **PO9.** Relate the various abiotic factors with health of living forms and ecosystems.
- **PO10.** Apply the knowledge of Zoology to understand the complex life life Processes and phenomena.
- **PO11.** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning.

PROGRAM SPECIFIC OUTCOMES: PSO OF B. SC., ZOOLOGY

- **PSO1** Demonstrated a broad understood of animal diversity, including knowledge of the scientific classification and evolutionary relationships of major groups of animals.
- **PSO2** Recognized the relationships between structure and functions at different levels of biological organization (e.g., molecules, cells, organs, organisms, populations, and species) for the major groups of animals.
- **PSO3** Characterized the biological, chemical, and physical features of environments (e.g.,terrestrial, freshwater, marine, host) that animals inhabit. Explained how animals function and interact with respect to biological, chemical and physical processes in natural and impacted environments.
- **PSO4** Explained how organisms function at the level of the gene, genome, cell, tissue, organ and organ-system. Drawing upon this knowledge, they are able to give specificexamples of the physiological adaptations, development, reproduction and behavior ofdifferent forms of life.
- **PSO5** Understood the applied biological sciences or economic Zoology such as sericulture,Apiculture, aquaculture, Industrial microbiology, rDNA technology and medicine for their career opportunities.

COURSE OUTCOMES OF ZOOLOGY

I-YEAR -SEMESTER I

TITLE: ANIMAL DIVERSITY-INVERTEBRATES- CODE: 116

On completion of the courses students will be able to

- ▶ CO1 Know the basic concept of biosystematics and procedure in taxonomy.
- ▶ CO2 Identify the taxonomic status of the entire non-chordates
- ▶ CO3 Describe the general biology of few selected non-chordates useful to mankind.
- ▶ CO4 Know about some of the important and common protozoans, helminthes of parasitic nature causing diseases in human beings.
- ▶ CO5 Understand the importance of metamerism in annelids.
- ▶ CO6 Described the social life and economic importance of insects.
- ▶ CO7 Understood the physiology of pearl formation
- ▶ C08 Describe the advanced characteristic features of cephalopod molluscs.
- ▶ CO9 Know the evolutionary significance of larval forms of echinoderms and their resemblance to chordates.

I-YEAR -SEMESTER II

TITLE: ANIMAL DIVERSITY- VERTEBRATES- CODE: 216

On completion of the courses students will be able to

- ▶ CO1 Identify the taxonomic status of the entire chordates and have knowledge of the evolutionary model of each group.
- ▶ CO2 Understand the ecology of some important fishes, amphibians reptiles, birds and mammals.

- ▶ CO3 Understand the comparative anatomy and development systems of chordates.
- ▶ CO4 Know some of the very important phenomena in Chordates.
- ▶ CO5 Know about the conservation and management strategies of the chordate fauna.

II-YEAR -SEMESTER III

TITLE– ANIMAL PHYSIOLOGY & ANIMAL BEHAVIOUR- CODE: 316

On completion of the courses students will be able to

- ▶ CO1 Understand the composition of food and mechanism of digestion, absorption and assimilation.
- ▶ CO2 Gain knowledge of respiration and excretion and understand the mechanism of transport of gases and urine formation.
- ▶ CO3 Understand the mechanism of circulation and composition of blood.
- ▶ CO4 Understand the mechanism of neuromuscular coordination and the mechanism of osmoregulation in animals and endocrine system and their function.
- ▶ CO5 Understand the menstrual cycle and the role of hormones in male and female reproductive systems.
- ▶ CO6 Understand the various Behaviors of animals.

II-YEAR -SEMESTER IV

TITLE– CELL BIOLOGY, GENETICS & DEVELOPMENTAL BIOLOGY -CODE: 416

On completion of the courses students will be able to

- ▶ CO1 Have acquired knowledge of principles and working mechanisms of microscopes.
- ▶ CO2 Understand the mechanism of mitosis and meiosis.

- ▶ CO3 Prepare slides of onion root tips to see different mitotic stages.
- ▶ CO4 Understood the different stages of chick embryo.
- ▶ CO5 Appreciate the process evolution evolutionary relationship among animal groups by direct observation of fossil specimen
- ▶ CO6 Understand the theories of classical genetics and blood group inheritance in man.
- ▶ CO7 understand that the genetic variation is through linkage and crossing over, chromosomal aberrations and sex determination.
- ▶ CO8 Understand the genetic defects and inborn errors of metabolism and genetic counseling and role of inbreeding and outbreeding.

III-YEAR -SEMESTER V

TITLE –DSE-I IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY- CODE: 516

On completion of the courses students will be able to

- ▶ CO1 Understand the concept of immunity and the difference between innate and acquired immunity
- ▶ CO2 Gain knowledge of immune responses
- ▶ CO3 Understand the importance of immunodeficiency and autoimmune disorders.
- ▶ CO4 Attain knowledge in the history, branches and scope of biotechnology and gene transfer technique.
- ▶ CO5 Understand the recombinant technology, gene integration into the vector and with host genome and creation of transgenic animals.
- ▶ CO6 Attain knowledge about in-vitro fertilization and embryo transfer.

- ▶ CO7 Understand the principle and applications of biotechnology techniques – DNA finger printing, Southern blotting, Western blotting, DNA sequencing (Sanger method).
- ▶ CO8 Describe the applications stem cells and and their applications in medicine
- ▶ CO9 Learn about the animal cell culture.

III-YEAR -SEMESTER VI

TITLE- DSE-II ECOLOGY, ZOOGEOGRAPHY AND EVOLUTION.

CODE: 616

On completion of the courses students will be able to

- ▶ CO1- Understand Environmental Pollution and appreciate its control measures
- ▶ CO2- To understand importance of conservation of wildlife and endangered species and the methods of conservation
- ▶ CO4- Identify Zoogeographical regions with their climatic and faunal peculiarities
- ▶ CO5- Acquire knowledge about the evolutionary history of earth - living and nonliving.
- ▶ CO6- Acquire basic knowledge about evolutionary concepts and theories.
- ▶ CO7- Study the distribution of animals on earth, its pattern, evolution and causative factors.