### Program Specific Outcomes: PSO of B. Sc., Zoology

- Demonstrated a broad understood of animal diversity, including knowledge of the scientific classification and evolutionary relationships of major groups of animals.
- 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.
- 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.
- 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 specific examples of the physiological adaptations, development, reproduction and behavior of different forms of life.
- 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 B.SC., ZOOLOGY**

### **COURSE OUTCOMES: BIODIVERSITY OF INVERTEBRATE-I**

- > Came to knowing the basic concept of biosystematics and procedure in taxonomy.
- Identified the taxonomic status of the entire non-chordates up to annalids and discuss the evolutionary model of the group.
- > Described the general biology of few selected non-chordates useful to mankind.
- Know about some of the important and common protozoans, helminthes of parasitic nature causing diseases in human beings.
- > Understood the importance of metamerism in annelids.

### COURSE OUTCOMES: BIODIVERSITY OF INVERTEBRATE- II

- Understood the diversity and classification and functional aspects of different systems of phylum Arthropoda, Mollusca and Echinodermata.
- > Described the social life and economic importance of insects.
- > Understood the physiology of pearl formation and pearl oyster formation.
- > Described the advanced characteristic features of cephalopod molluscs.
- Came to know that the resemblance and evolutionary significance of larval forms of echinoderms.

### COURSE OUTCOMES: LAB - BIODIVERSITY OF INVERTEBRATE- I&II

- > Understood the anatomy and physiology of invertebrate animals by dissection.
- > Described the structural study and mounding of organs.
- > Came to knowing the rules of taxonomy and the principle of animal classification.
- Understood the diversity morphology, biological characters and taxonomical importance some selected museum specimens of different animal groups.
- > Came to know that internal skeletons and osteology of different bone structures.

### **COURSE OUTCOMES: BIODIVERSITY OF CHORDATES**

Identified the taxonomic status of the entire chordates and discussed the evolutionary model of the group.

- Imparted the knowledge on ecology of some important fishes, amphibians reptiles, birds and mammals.
- > Impart knowledge in comparative anatomy and development systems of chordates.
- ▶ Make able to discuss some and very important phenomena in Chordates.
- ▶ Know about the conservation and management strategies of the chordate fauna.

### **COURSE OUTCOMES - CELL BIOLOGY AND INSTRUMENTATION**

- Understood the structure of cells and cell organelles in relation to the functional aspects and understanding of the working principles and applications of microscopes
- > Described the composition of prokaryotic and eukaryotic cells.
- Understood the structure and functions of chromosome; mitotic and meiotic cell divisions and their significance
- Understood the properties and treatment of cancer cells. Described the principle and applications of pH meter, centrifuge, chromatography and electrophoresis.

### **COURSE OUTCOMES - DEVELOPMENTAL BIOLOGY AND EVOLUTION**

- > Understood the process of development of animals.
- Understood the process of organogenesis of selected organs, development of extra embryonic membrane and the nature and physiology of placenta.
- Came to know the inducer and inductor role in embryogenesis and knowledge about metamorphosis and the process of regeneration.
- Understood the theories of evolution and highlighted the role of evidences in support of evolution
- > Described the evolutionary knowledge through the concepts of coloration and mimicry.

### COURSE OUTCOMES LAB - CELL BIOLOGY AND DEVELOPMENTAL BIOLOGY

- > Acquired knowledge of principles and working mechanisms of microscopes
- > Understood the mechanism of mitosis and meiosis.
- ▶ Gained slide preparation to observe of Giant chromosome, epithelial and blood cells.
- > Understood the concept of chromatography and finding Rf values of different compounds

Preparation, direct observation and appreciation of sperm motility and different stages of chick embryo development and placentation of animals.

### COURSE OUTCOMES - GENETIC AND MOLECULAR BIOLOGY

- > Understood the theories of classical genetics and blood group inheritance in man
- Described the genetic variation through linkage and crossing over, chromosomal aberrations and sex determination.
- Understood the genetic defects and inborn errors of metabolism and genetic counseling and role of inbreeding and outbreeding.
- Understood the molecular structure of genetic materials and understood the mechanism of gene expression and regulation character formation.

# COURSE OUTCOMES LAB - EVOLUTION, GENETICS AND MOLECULAR BIOLOGY

- Obtained the knowledge about direct observation of fossils and evolutionary important specimen by which evolutionary relationship of animal groups.
- > Understood the inheritance of mendelian traits by direct observation among students.
- Acquired knowledge skill development and observation of blood group identification and pedigree chart preparations
- > Understood of the mechanism of phenotypic expression in Drosophila.
- ➢ Gained genetic knowledge on the observation of specimens and models.

### **COURSE OUTCOMES - ANIMAL PHYSIOLOGY**

- Understood about the composition of food and mechanism of digestion absorption and assimilation.
- Attained knowledge of respiration and excretion and understood the mechanism of transport of gages and urine formation.
- > Described the mechanism of circulation and composition of blood

- Knowledge of neuromuscular coordination and the mechanism of osmoregulation in animals and endocrine system and their function is attained.
- > Understood the menstrual cycle and the role of contraceptive in population control.

### **COURSE OUTCOMES - BIOCHEMISTRY**

- Comprehended the energy source, chemical bonds and the principles of thermodynamic understood the importance of acid base balance
- Attained the knowledge of macromolecule such as carbohydrates, protein and fat, their types and significance.
- > Understood the knowledge of cholesterol and its biological significance
- Described the enzymes, mechanism of enzyme action and factors affecting the enzyme activity
- Understood the types and importance of vitamins

### **COURSE OUTCOMES - FISHERY BIOLOGY**

- Described the fisheries and fishery industries
- > Understood the various types and methods of aquaculture practices.
- > Understood the physiology and reproductive mechanisms of important fishes.
- > Understood the modern techniques and methods of fishery industries.
- Attained knowledge about important cultivable fin fishes, shell fishes and importance of value added fishery products

### **COURSE OUTCOMES- SERICULTURE**

- > Described Taxonomy, Morphological sex differences in larva and adult.
- Understood the culture of mulberry plants
- Came to know about the culture methods of *B.mori and* mulberry silk
- > Described the diseases and pests of *B.mori*.
- Studied the quality of silk, silk gland and marketing strategies of silk.

# COURSE OUTCOMES – LAB - ANIMAL PHYSIOLOGY, BIOCHEMISTRY, FISHERY BIOLOGY AND SERICULTURE

- Attained knowledge of qualitative analysis of macromolecules, excretory products, blood glucose and cholesterol.
- > Understood the enzyme reaction and influence of temperature on enzyme action.
- > Skill development for the observation of blood cells and haemin crystals.
- > Understood the working principle and applications of physiological instruments.
- Attained knowledge on the observation of preserved specimens and instruments of sericulture and fisheries.

### **COURSE OUTCOMES - FUNDAMENTALS OF BIOTECHNOLOGY**

- Attained knowledge the history, branches and scope of biotechnology and gene transfer technique.
- Understood the recombinant technology, gene integration into the vector and with host genome and creation of transgenic animals.
- > Attained knowledge about in-vitro fertilization and embryo transfer
- Understood the principle and applications of biotechnology techniques DNA finger printing, plotting technique micro array.
- Described the applications stem cells and gene therapy and biotechnology devices

### **COURSE OUTCOMES - ENVIRONMENTAL BIOLOGY AND BIOSTATISTICS**

- > Understood and appreciate the environment and ecological services of life on earth.
- Understood the abiotic factors of environment and biogeochemical cycle and intraspecific relationships of animals.
- Acquired knowledge of ecosystem, food chain, energy flow and productivity and understood pond as a model ecosystem
- Imparted knowledge of habitat ecology, pollution and bioremediation of polluted environment

Attained knowledge of data collection, tabulation and presentation of data and measures of central tendency, probability and Chi-square test.

### COURSE OUTCOMES - RECOMBINANT DNA TECHNOLOGY

- > Described the knowledge of recombinant DNA technology
- > Understood the tools of gene manipulation and gene transfer
- Knowledge of construction and labeling of molecular probe, construction of genomic library and protein engineering.
- > Understood the techniques of recombinant DNA technology and its applications
- > Came to know about the techniques and applications of human genome projects.

### COURSE OUTCOMES - FUNDAMENTALS OF BIOTECHNOLOGY, ENVIRONMENTAL BIOLOGY AND BIOSTATISTICS AND RECOMBINANT DNA TECHNOLOGY

- > Got knowledge of sterilization technique, blotting technique, DNA isolation from cells
- > Understood the techniques of differentiation of haemolymph and blood
- Observed of preserved specimens and instruments
- Comprehended the physico- chemical nature of water through estimation of its chemical compounds.
- > Understood the nature and functional aspects of intraspecific association of animals.