

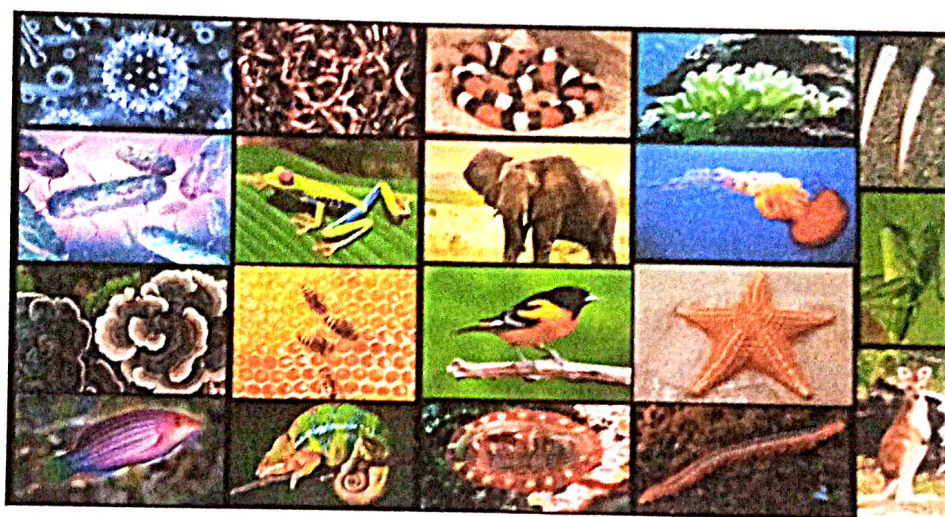


V.V.SANGHA'S

**SHREE KHASGATESH COLLEGE OF ARTS, COMMERCE AND SCIENCE  
TALIKOTI**

Affiliated to Rani Channamma University, Belagavi  
NAAC Accredited – 'A' Grade

**DEPARTMENT OF ZOOLOGY- 2023-24**



Programme Outcome (Pos)

Programme Specific Outcomes (PSOs)

Course Outcome (Cos)

**HEAD**

Department of Zoology  
S.K. Arts, Commerce & Science  
College, Talikoti 586214, Dt-Vijayapur

**IQAC Co-ordinator,**  
S. K. College of Arts, Comm. &  
Science, Talikoti. Dist:Vijayapur

**PRINCIPAL**

S. K. College of Arts, Comm, & Scler  
TALIKOTI-586214, Dist-Vijayapur

## **Program Learning Outcome**

Students enrolled in B.Sc. (Hons.) degree program in Zoology will study and acquire complete knowledge of disciplinary as well as allied biological sciences. At the end of graduation, they should possess expertise which will provide them competitive advantage in pursuing higher studies from India or abroad; and seek jobs in academia, research or industries.

Students should be able to identify, classify and differentiate diverse chordates and non-chordates based on their morphological, anatomical and systemic organization. They will also be able to describe economic, ecological and medical significance of various animals in human life. This will create a curiosity and awareness among them to explore the animal diversity and take up wild life photography or wild life exploration as a career option. The procedural knowledge about identifying and classifying animals will provide students professional advantages in teaching, research and taxonomist jobs in various government organizations; including Zoological Survey of India and National Parks/Sanctuaries.

Acquired practical skills in biotechnology, biostatistics, bioinformatics and molecular biology can be used to pursue career as a scientist in drug development industry in India or abroad. Our students will be acquiring basic experimental skills in various techniques in the fields of genetics; molecular biology; biotechnology; qualitative and quantitative microscopy; enzymology and analytical biochemistry. These methodologies will provide extra edge to our students, who wish to undertake higher studies. In-depth knowledge and understanding about comparative anatomy and developmental biology of various biological systems; and learning about the

## **NEP BASED**

### **B.Sc I SEMESTER (CYTOLOGY, GENETICS AND INFECTIOUS DISEASES – THEORY)**

CO1: Student will learn about Structure and Function of Cell Organelles I in Animal cell and Structure and Function of Cell Organelles II in Animal Cell.

CO2: Student will learn about Nucleus and Chromatin Structure, Cell cycle, Cell Division and Cell Signaling.

CO3: Student will learn about Mendelism and Sex Determination and Extension of Mendelism, Genes and Environment.

CO4: Student will learn about Human Chromosomes and Patterns of inheritance and Infectious Diseases.

### **B.Sc I SEMESTER (CYTOLOGY, GENETICS AND INFECTIOUS DISEASES- PRACTICAL)**

PCO1: Student will learn about Understanding of simple and compound microscopes.

PCO2: Student will learn about different cell types such as buccal epithelial cells, neurons, striated muscle cells using Methylene blue.

PCO3: Student will learn about different stages of Mitosis in root tip of *Allium cepa*.

## **B.Sc I SEMESTER OPEN ELECTIVE (ECONOMIC ZOOLOGY – THEORY)**

CO1: Student will learn about Sericulture and Apiculture.

CO2: Student will learn about Live Stock Management (Dairy, Poultry and Aquaculture)

## **B.Sc II SEMESTER (BIOCHEMISTRY AND PHYSIOLOGY – THEORY)**

CO1: Student will learn about Structure and Function of Biomolecules and Classification and General Properties of alpha amino acids.

CO2: Student will learn about Metabolism of Carbohydrates, Lipids, Proteins and Nucleotides.

CO3: Student will learn about Digestion, Respiration, Circulation and Excretion in humans.

CO4: Student will learn about Nervous System, Endocrinology and Muscular System in humans.

## **B.Sc II SEMESTER (BIOCHEMISTRY AND PHYSIOLOGY – PRACTICAL)**

PCO1: Student will study about Preparation of models of nitrogen bases, amino acids, dipeptides, DNA and RNA.

PCO2: Student will learn about Qualitative analysis of Carbohydrates, Proteins, Lipids and Nitrogenous wastes.

PCO3: Student will learn about estimation of Hemoglobin in human blood using Sahli's haemoglobinometer.

PCO4: Student will learn about counting of RBC and WBC using Hemocytometer.

PCO5: Student will learn about differential staining of human blood corpuscles using Leishman stain.

## **B.Sc II SEMESTER OPEN ELECTIVE (PARASITOLOGY–THEORY)**

CO1: Student will learn about general concepts of parasites, Parasitic Platyhelminthes and Parasitic Protists.

CO2: Student will learn about Parasitic Nematodes, Parasitic Arthropods and Parasitic Vertebrates.

CO3: Student will learn about Molecular diagnosis and clinical parasitology.

## **B.Sc III SEMESTER (Molecular Biology, Bioinstrumentation & Techniques in Biology – THEORY)**

At the end of the course the student should be able to understand:

CO1: After successful accomplishment of the course, the learners will be able to acquire better understanding and comprehensive knowledge regarding most of the essential aspects of Molecular Biology subject which in turn will provide a fantastic opportunity to develop professional skill related to the field of molecular biology.

CO2: The course will mainly focus on the study of principal molecular events of cell incorporating DNA Replication,

CO3: Transcription and Translation in prokaryotic as well as eukaryotic organisms.

CO4: Acquiring knowledge on instrumentation and techniques in biology.

### **B.Sc III SEMESTER (Molecular Biology, Bioinstrumentation & Techniques in Biology – Practical**

At the end of the course the student should be able to:

At the end of the course, students will be able to understand the applications of biophysics and principle involved in bio-instruments.

Understand the methodology involved in biotechniques.

Students can demonstrate knowledge and practical skills of using instruments in biology and medical field.

They can perform techniques involved in molecular biology and diagnosis of diseases.

### **B. Sc IV SEMESTER (Gene Technology Immunology and Computational Biology – THEORY)**

**At the end of the course the student should be able to:**

Acquaint knowledge on versatile tools and techniques employed in genetic engineering and recombinant DNA technology.

An understanding on application of genetic engineering techniques in basic and applied experimental biology.

To acquire a fundamental working knowledge of the basic principles of immunology. To understand how these principles, apply to the process of immune function.

Use, and interpret results of, the principal methods of statistical inference and design; helps to communicate the results of statistical analyses accurately and effectively; helps in usage of appropriate tool of statistical software.

## **B. Sc IV SEMESTER (Gene Technology Immunology and Computational Biology – Practical)**

At the end of the course the student should be able to:

Accurately, safely and appropriately use all the equipment regularly used in Molecular Biology (DNA manipulation, including balances, pipettes, electrophoresis and centrifuges).

Prepare chemical solution and reagents to the precision appropriate to the task.

Demonstrate knowledge of the biochemical basis underpinning the molecular biology techniques.

### **B.Sc. Semester – V**

#### **Course Title: Non-Chordates and Economic Zoology (Theory) Course**

**At the end of the course students will be able to:**

CO1: Understand the evolutionary history and diversity of non-chordates

CO2: Study the external and internal characters of non-chordates

CO3: Expose type, structural and functional organization of non-chordates

CO4: Group the animals on the basis of their morphological characteristics.

CO 5: Understand the economic importance of non-chordates

**Course Title: Non-Chordates and Economic Zoology (Practical)**

**Course Outcomes (COs):**At the end of the course, students will be able to:

CO 1: Understand basics of classification of non-chordates.

CO 2: Learn and understand the internal systems of non-chordates.

CO 3: Develop the skills to identify different classes and species of animals.

CO 4: Know uniqueness of a particular animal and economic importance of non-chordates.

CO 5: Enhancement of basic laboratory skill like keen observation and drawing.

CO 6: Study the useful and harmful non-chordates

**Course Title: Chordates and Comparative Anatomy (Theory)**

**Course Outcomes (COs):**At the end of the course, students will be able to:

CO1: Understand the basic concept, diversity and classification of Chordates

CO2: Demonstrate comprehensive identification abilities of chordate diversity

CO3: Understand evolutionary relationship amongst all chordates

CO4: Understand the external morphology and sexual dimorphism in chordates.

CO5: Understand arrangement of endoskeleton of vertebrates.

CO6: Know the comparative anatomy of various systems, adaptations, physiological mechanisms of vertebrates.



**Course Title: Chordates and Comparative Anatomy (Practical)**

**Course Outcomes (COs):** At the end of the course, students will be able to:

CO 1: Understand the external morphology of proto-chordates and chordates

CO 2: Study the cartilaginous, bony and ornamental fishes

CO 3: Understand the systematic position and classification of Chordates

CO 4: Study the comparative anatomy and internal systems of vertebrates

CO 5: Understand the beak and foot modifications in birds.

**B.Sc. Semester – VI Discipline Specific Course (DSCC)-13 Course Title: Evolutionary and Developmental Biology (Theory)**

**Course Outcomes (COs):** At the end of the course students will be able to:

CO 1: Understand that by biological evolution we mean that many of the organisms that inhabit the earth today are different from those that inhabited it in the past.

CO 2: Understand that natural selection is one of several processes that can bring about evolution, although it can also promote stability rather than change.

CO 3: Understand how the single cell formed at fertilization forms an embryo and then a full adult organism.

CO 4: Integrate genetics, molecular biology, biochemistry, cell biology, anatomy and physiology during embryonic development.

CO 5: Understand a variety of interacting processes, which generate an organism's heterogeneous shapes, size, and structural features.

**Course Title: Evolutionary and Developmental Biology (Practical)**

**Course Outcomes (COs):** At the end of the course, students will be able to:

CO 1: Explain core features of evolutionary theory and their applications to biological systems.

CO 2: Explain how evolutionary patterns and processes can be inferred using sequence data, the biology of extant organisms, and fossils.

CO 3: Study the process by which organisms grow and develop.

CO 4: Understand the development of multicellular organisms from a single cell zygote.

CO 5: Learn interesting and unique post-embryonic development in other animals.

CO 6: Understand the concept of aging and the relevance of this knowledge in several medical applications

**B.Sc. Semester – VI Discipline Specific Course (DSCC)-15 Course Title: Environmental Biology, Wildlife Management and Conservation (Theory)**

**Course Outcomes (COs):** At the end of the course, students will be able to:

CO1: Develop an understanding of how animals interact with each other and their natural environment.

CO 2: Get knowledge about all types of ecosystems, food chains, webs and energy models.

CO3: Study various types of environmental pollutions

CO 4: Develop the ability to use the fundamental principles of wildlife ecology to solve local, regional and national conservation and management issues.

CO 5: Gain an appreciation for the modern scope of scientific inquiry in the field of wildlife conservation management.

CO 6: Develop an ability to analyze, present and interpret wildlife conservation management information.

**Course Title: Environmental Biology, Wildlife Management and Conservation (Practical)**

**Course Outcomes (COs):** At the end of the course, students will be able to:

CO 1: Understand the basic concepts of environmental sciences, ecosystems, natural resources, population, environment and society

CO 2: Understand the basic concepts of toxicology, their impact on human health and remedial measures

CO 3: Provide understanding and knowledge on modern concepts in wildlife management and relevant conservation policies and legislation and their enforcement mechanism at Global and Local Level,

CO 4: Understand the scientific approach to wildlife management and planning.

CO 5: Develop scientific skills for resolving human wildlife conflict including capture, handling, care and management of wild animals.

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