

**Course Outcome B.Sc. 1<sup>st</sup> Year, 2023-2024**

<b>Course Code</b>	<b>Course Name</b>	<b>Course Outcomes</b>
Paper -I	Animal Diversity Non- Chordata and Chordata, Co,putative Anatomy and Phsiology of Non-chordates	<p>Upon completion of the course students should be able to :</p> <ul style="list-style-type: none"> <li>• Learn about the importance of systemic, taxonomy and phylogeny to get a concrete idea of evolution of non-chordate phyla. .</li> <li>• Understand the various morphological, anatomical structures and functions of animals of different phyla.</li> <li>• Get the knowledge about economic, ecological and medical significance of various animals in human welfare.</li> <li>• Understand the important parasites and their control measures.</li> <li>• Comparison of the anatomy and physiology of the different taxa of non-chordates.</li> </ul>
Paper -II	Cell Biology, Histology and Comparative Anatomy & Physiology of Chordates	<p>At the end of this course, the students will be able :</p> <ul style="list-style-type: none"> <li>• Understand the basic structure, functioning of the cell and cell organelles and understand the intricate cellular mechanisms involved.</li> <li>• Understand the tissues, how tissues are produced from cells in a normal course and about any malfunctioning which may lead to benign or malignant tumor.</li> <li>• Develop an understanding of the evolution of vertebrates thus integrating structure, function and development.</li> <li>• Understand the morphological, anatomical and physiological adaptation in diverse habitats.</li> <li>• 5. Develop an understanding of the evolution of vertebrates thus integrating structure, function and development.</li> </ul>
Prectical paper	Course Learning Outcomes	<p>After completion of practical work the outcome will be:</p> <ul style="list-style-type: none"> <li>• Able to know animal diversity in the form of museum / slide for invertebrate and invertebrates.</li> <li>• Capable to enumerate biology of invertebrates.</li> <li>• Capable to explore anatomy of animals.</li> <li>• Able to understand cytological, histological and osteological configuration for animal life.</li> <li>• Capable to explain hematology of animal system.</li> </ul>

### Course Outcomes: B.Sc.- II Zoology

Paper Code	Course Name	Course Outcomes <i>After completing this course, students will be able to:</i>
Paper-I (Code-0863)	Anatomy and Physiology	<p>CO-1. Understand the terms Histology and Physiology.</p> <p>CO-2. To understand the comparative and histological studies of systems such as digestive, respiratory, nervous, circulatory, excretory and reproductive system of vertebrates.</p> <p>CO-4. Study the derivatives of skin- horns, nails, hairs to understand Integument and its derivatives. and Integument's Structure.</p> <p>CO-5. Understand the Digestion and Excretion process, by studying the Organs of it.</p> <p>CO-6. Understand the Circulatory system .</p> <p>CO-7. Study the nerve impulse and muscle contraction.</p> <p>CO-8. Understand the Studies of the following systems: The Sense Organs , Endocrine glands and Exocrine glands.</p> <p>CO-9. To understand Digestion and absorption of proteins, Carbohydrates and lipids.</p> <p>CO-10. To understand Fat body: Structure, physiology, biochemistry, functions. Integration of carbohydrate, fat and acid metabolism</p> <p>CO-11. Excretion and water balance: Structure and function of malphigian tubules. Water balance and nitrogen excretion.</p>
Paper-II (Code-0864)	Vertebrate Endocrinology Reproductive Biology, Behavior, Evolution and Applied Zoology.	<p>CO-1. To understand Reproductive organ: male and female gonads, duct systems and sex accessories, external sexual dimorphisms</p> <p>CO-2. Understand the Reproductive patterns: Environmental factors and breeding, continuous and seasonal breeders.</p> <p>CO-3. Understand the Sexual cycles: puberty, oestrous and menstrual cycles. Ovarian event: follicular phase, cycling of non-pregnant uterus.</p> <p>CO-4. To understand Pregnancy: conception and blastocyst formation, implantation and delayed implantation, placenta: formation, types and functions, hormones in pregnancy.</p>

		<p>CO-5. To understand Origin of life with respect to prokaryotic and eukaryotic cells.</p> <p>CO-6. Understand the evidences of organic evolution by anatomical embryological list, paleontological, physiological, genetics and molecular biology evidences.</p> <p>CO-7. Understand theories of organic evolution, isolation, speciation.</p> <p>CO-8. Understand geological time scale, methods and classification of animal distribution and factors affecting animal distribution.</p> <p>CO-9. To understand significance of beneficial and harmful insects with reference to their habit and habitat, life cycle, diseases caused by them and their control measures.</p> <p>CO-10. Students know about economically important Fishery, Poultry, Goat and sheep farming.</p> <p>CO-11. To understand the Aquaculture concept, Culture systems: Freshwater aquaculture systems: Freshwater prawn culture, fish culture in paddy fields, Brackish water culture, Mariculture: Oysterculture, mussel culture.</p> <p>CO-12. To understand the Composite fish culture and Preparation and management of fish culture ponds. fish seed and Brood fish and Harvesting.</p> <p>CO-13. To understand Fresh water prawn culture and Pearl culture, Pearl producing mollusks, pearl formation, collection of oysters, rearing of oysters, insertion of nucleus, harvesting of pearls, composition &amp; quality of pearl. Apiculture, Sericulture, Prawn culture</p> <p>CO-14. Understand the Household insects, Insects of commercial value and stored grain pests.</p>
<p>Practical Work (Code-</p>	<p><b>Chordates histology, anatomy, physiology.</b> <b>Osteology, Social Insects.</b></p>	<p>CO-1. To understand the morphology Histology and Anatomy of vertebrates by Studying Class wise Museum Specimen and Permanent slides of animals.</p> <p>CO-2. To understand the morphology and Anatomy of vertebrates by alternative Dissection methods like Clay models, Charts , Thermocol, virtual Dissection, Drawing etc. of animals.</p> <p>CO-3. To understand Organisation of Insect by studying Museum specimens and permanent slides of Hymenopteran insect.</p> <p>CO-4. Comparative study of endoskeleton of tetrapods.</p>

### Course Outcomes: B.Sc.-III Zoology

Paper Code	Course Name	Course Outcomes
Paper-I	Ecology, Ecosystem Toxicology, Microbiology and Parasitology	<p>CO-1. Know the biotic and abiotic components of ecosystem.</p> <p>CO-2. Food chain &amp; food web in ecosystem.</p> <p>CO-3. Understand diversity among various groups of animal kingdom.</p> <p>CO-4. Understand Animal community &amp; ecological adaptation in animals.</p> <p>CO-5. To understand Scope , importance and management of Biodiversity.</p> <p>CO-6. To understand the Biosphere: Introduction, hydrosphere, lithosphere, atmosphere.</p> <p>CO-7. To understand Pollution: Kinds of pollution and pollutants (Air, Water, Soil, Noise etc.). To understand pollution: Characteristics of sound, source and effects of noise pollution.</p> <p>CO-8. Understand the Population and community ecology, wetland forest and their conservation.</p> <p>CO-9. Scope , importance and management of biodiversity.</p> <p>CO-10. To aware the students for various parasites and diseases which spreads in human with the help of study of host-parasite relationship.</p> <p>CO-11. To increase awareness for the health in students.</p> <p>CO-12. Understand the various disease causing vectors like Mosquitoes.</p> <p>CO-13. To aware about the typhoid, cholera like disease.</p> <p>CO-14. To Understand the classification, geographical distribution , morphology, life-cycle, transmission, pathogenecity , treatment and prophylaxis of: Protozoa, Platyhelminthes, Nematoda. To understand <i>Leishmania</i> &amp; <i>Trypanosoma</i>; <i>Plasmodium</i>, Resistance of Malaria to drugs, its mechanism &amp; assessment, Platyhelminthes and Nematodes.</p> <p>CO-15. To understand the Study of life cycle, role as vector &amp; control</p>

		<p>measures of: Mosquito - anyone from- <i>Anopheles/ Aedes / Culex</i>.</p> <p>CO-16.To understands Parasitic protozoans and their role in human welfare, soil protozoans and their role in agriculture.</p> <p>CO-17. Understand human and animal parasites likesprochaetes, Rickettsia etc.</p> <p>CO-18. Study the Methods of preparation and application of Milk and milk products.</p> <p>CO-19. Study the Methods of preparation and application of Beverage, antibiotics.</p> <p>CO-20. Study the process of sewage water treatment</p>
	Genetics, Cell Physiology, Biochemistry, Biotechnology and instrumentation	<p>CO-1.Understand the cell physiology.</p> <p>CO-2.Understand the terms-Osmosis, diffusion, pH and Buffer.</p> <p>CO-3.Understand the various Applications of Biotechnology.</p> <p>CO-4. Understand the term pH, Buffer.</p> <p>CO-5. Understand the structure and function of carbohydrate, amino acids, proteins, and lipids.</p> <p>CO-6. Understand the concept Enzymes and also Vitamins and minerals.</p> <p>CO-7. Understand the Principle role of Vitamins in metabolism and Deficiency diseases.</p> <p>CO-8. Study and Understand the Hybridoma technology as well as Enzyme biotechnology.</p> <p>CO-9. Study and understand the DNA Recombinant technology.</p> <p>CO-10. Understand the industrial and environmental biotechnology.</p> <p>CO- 11.Understand the Scope and Significance of Biotechnology.</p> <p>CO-12. Understand the Principles of Genetics: Mendalian and Non-Mendalian Inheritance. Linkage, Crossing over, gene Mapping, Multiple allelism,Pliotropism etc.</p> <p>CO-13.Understanding the Principles and uses of various instruments like Microscope, Centrifuge, Colorimeter, Spectrophotometer, electrophoresis, Chromatography ect.</p> <p>CO-14. Study and understand the procedure of Histochemical analysis of various Organic compounds.</p>

Practical Work	Ecology, Haematology, cytology, Parasitology, and Instrumentation.	<p>CO-1. To understand the concept of ecology by using practical tools like Quadrant.</p> <p>CO-2. To understand the process of different parameters of Blood test by using Haemocytometer, haemoglobinometer, Blood group testing kit, clotting time ,haematin crystals etc.</p> <p>CO-3. To study the various human parasite slide to undersatand their life cycle, pathogenecity , transmission and their vector host.</p> <p>CO-4. Understand the process of operating various laboratory equipments like microscope, Colorimeter, Spectroscope, Chromatograph, Centrifuge.</p> <p>CO-5. Understand the process of Biochemical analysis of different compoundd.</p>
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