

DEPARTMENT OF ZOOLOGY

COURSE OUTCOMES

SEMESTER - I

PAPER-I ANIMAL DIVERSITY - BIOLOGY OF NON-CHORDATES

THEORY

CO#	Course Outcome
C01	Classify different animals using general taxonomic rules. (K4)
C02	Classify Protozoa to Coelenterate with taxonomic keys. (K4)
C03	List out the general characters and explain evolutionary significance of Ctenophore. (K3)
C04	Classify phylum Platyhelminthes to Annelida phylum using examples from parasitic adaptation and vermin composting. (K4)
C05	Illustrate phylum Arthropoda to Mollusca using examples and importance of insects and Molluscans. (K4)
C06	Differentiate Echinodermata to Hemichordate with suitable examples and larval stages in relation to the phylogeny. (K4)

PRACTCAL

CO#	Course Outcome
C01	Illustrate the importance of preservation of museum specimens. (K3)
C02	Categorize animals based on special identifying characters. (K4)
C03	Explain different organ systems through demo or virtual dissections. (K3)
C04	Diagram a neat labeled record of identified museum specimens. (K4)

SEMESTER – II

PAPER-II ANIMAL DIVERSITY - BIOLOGY OF NON-CHORDATES

THEORY

CO#	Course Outcome
C01	Describe general taxonomic rules on animal classification of chordates. (K2)
C02	Classify Protochordata to Mammalian with taxonomic keys. (K4)
C03	Illustrate Reptiles with specific structural adaptations. (K4)
C04	Explain mammals with specific structural adaptations. (K3)
C05	Illustrate the significance of dentition and evolutionary significance. (K4)
C06	Illustrate the origin and evolutionary relationship of different phyla from Protochordata to Mammalian. (K4)

PRACTCAL

CO#	Course Outcome
C01	Categorize taxidermy and other methods of preservation of chordates. (K4)
C02	Evaluate chordates based on special identifying characters. (K5)
C03	Demonstrate internal Anatomy of animals through demo or virtual dissections, thus directing the student for “Empathy towards the fellow living beings”. (K3)
C04	Diagram a neat, labeled record of identified museum specimens. (K4)

SEMESTER - III

PAPER-III CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY AND EVOLUTION

THEORY

CO#	Course Outcome
C01	Describe the basic unit of the living organisms and differentiate the organisms by their cell structure. (K2)
C02	Assess the structure and function of plasma membrane and different cell organelles of eukaryotic cell. (K5)
C03	Demonstrate the history of origin of branch of genetics gain knowledge on heredity interaction of genes, various types of inheritance patterns existing in animals. (K3)
C04	Illustrate various aspects of genetics involved in sex-determination human karyotyping and mutations of chromosomes resulting in various disorder. (K3)
C05	Explain the central dogma of molecular biology and flow of genetic information from DNA to proteins. (K3)
C06	Illustrate the principles and forces of evolution of life on earth, the process of evolution of new species and apply the same to develop new and advanced varieties of animals for the benefit of the society. (K4)

PRACTICAL

CO#	Course Outcome
C01	Illustrate skill enhancement in the usage of laboratory microscope hands-on experience of different phases of cell division by experimentation. (K4)
C02	Develop skills on human Karyo typing and identification of chromosomal disorders. (K3)
C03	Apply the basic concept of inheritance for applied research. (K3)
C04	Develop familiar with phylogeny and geological history of origin & evolution of animals. (K3)

SEMESTER – IV

PAPER-IV EMBRYOLOGY, PHYSIOLOGY AND ECOLOGY

THEORY

CO#	Course Outcome
C01	Illustrate the functions of important animal physiological systems including digestion, cardio respiratory and renal systems. (K4)
C02	Explain the muscular system and the neuro endocrine regulation of animal growth development and metabolism with a special knowledge of hormonal control of human reproduction. (K3)
C03	Explain the structure classification and chemistry of bio molecules and enzymes responsible for sustenance of life in living organisms. (K3)
C04	Demonstrate the basic metabolic activities pertaining to the catabolism and anabolism of various bio-molecules. (K3)
C05	Analyze the key events in The early embryonic development starting from the formation of gametes up to gastrulation formation of primary germ layer. (K4)

PRACTCAL

CO#	Course Outcome
C01	Report of an organ system with histological structure. (K3)
C02	Assess human health based on the information of composition of blood cells. (K5)
C03	Demonstrate enzyme activity <i>in vitro</i> . (K3)
C04	Analyze various bio-molecules of tissues by simple colorimetric methods and also quantitative methods. (K3)

SEMESTER – V

PAPER-V ANIMAL BIOTECHNOLOGY

THEORY

CO#	Course Outcome
C01	Illustrate the applications of biotechnology in the fields of industry and agriculture including animal cell-tissue culture stem cell technology and genetic engineering. (K3)
C02	Explain the tools and techniques of animal biotechnology. (K3)
C03	Demonstrate hybridoma technology and write its applications. (K3)
C04	Explain reproductive technologies and transgenic animals in animal biotechnology. (K2)(K3)
C05	Explain fermentation and its types. (K3)
C06	Illustrate monoculture in fishes and polyploidy in fishes. (K3)

PRACTCAL

CO#	Course Outcome
C01	Demonstrate basic laboratory skills necessary for Biotechnology research. (K3)
C02	Demonstrate the application of the lab techniques for taking up research in higher studies. (K3)
C03	Estimate DNA Quantification using agarose gel electrophoresis. (K4)
C04	Report DNA Amplification by PCR technique. (K3)

PAPER-VI ANIMAL HUSBANDARY

THEORY

CO#	Course Outcome
C01	Demonstrate the Principles of Poultry housing and management of Chicks, growers and layers. (K3)
C02	Explain different stages of layers and broilers. (K3)
C03	Explain about selection care and handling of hatching eggs. (K3)
C04	Classify Indian cattle breeds, exotic breeds and Indian buffalo breeds. (K4)
C05	Explain about housing of dairy animals, conventional dairy barn and weaning of calf. (K2)
C06	Illustrate care and management of calf, heifer , milk animal, dry and pregnant animals, bulls and bullocks. (K3)

PRACTCAL

CO#	Course Outcome
C01	Demonstrate various breeds of layers and broilers (Photographs). (K3)
C02	Analyze disease causing organisms in Poultry birds. (K4)
C03	Demonstrate the anatomy of the poultry bird by way of dissecting a bird. (K3)
C04	Demonstrate various activities carried out in a dairy farm. (K3)

PAPER-VI IMMUNOLOGY

THEORY

CO#	Course Outcome
CO1	Classify the organs of immune system types of immunity cells and organs of immunity. (K4)
CO2	Demonstrate Immunological response to how it is triggered (antigens) and regulated (antibodies). (K3)
CO3	Distinguish between exogenous and endogenous pathways of antigen presentation. (K5)
CO4	Illustrate cell cultures- primary and secondary. (K3)
CO5	Explain various types of hypersensitivity and vaccines. (K3)
CO6	Illustrate about monoclonal antibodies. (K4)

PRACTCAL

CO#	Course Outcome
CO1	Demonstrate immunological techniques vis-a-vis theory taught in the classroom. (K4)
CO2	Interpret the theoretical and practical knowledge of immunity with the outer world for the development of a healthier life. (K3)
CO3	Demonstrate lymphoid organs. (K4)
CO4	Categorize different blood groups. (K4)

PAPER- CLUSTER - I PRINCIPLES OF AQUACULTURE

THEORY

CO#	Course Outcome
C01	Explain the concept of Principles of Aquaculture. (K4)
C02	Distinguish the concept of monoculture , composite culture, mono sex culture and integrated fish farming. (K3)
C03	Explain ponds, raceways , cages , pens, rafts and water re-circulating system. (K5)
C04	Illustrate the design and construction of fish and shrimp farms. (K3)
C05	Explain about the management of carp culture ponds. (K3)
C06	Demonstrate the Culture of shrimp, pearl oysters, sea weeds and ornamental fishes. (K4)

PRACTCAL

CO#	Course Outcome
C01	Distinguish between cultivable and edible fishes. (K5)
C02	Differentiate Aquarium fishes from other fishes. (K4)
C03	Demonstrate fish and shrimp diseases. (K3)
C04	Estimate water quality parameters such as temperature , P ^H , O ₂ , CO ₂ etc., in pond water sample. (K4)

PAPER- CLUSTER - II AQUACULTURE MANAGEMENT

THEORY

CO#	Course Outcome
C01	Compare bundh breeding and induced breeding of carp. (K2)
C02	Estimate water quality parameters and soil characteristics for fish and shrimp culture. (K4)
C03	Distinguish different types of foods and feeds such as supplementary feeds, principal foods and artificial diets, feed additives and preservatives. (K4)
C04	Evaluate principles of disease diagnosis and health management. (K5)
C05	Analyze fish marketing methods and fishery training in India. (K4)
C06	Explain genetic improvement of fish stocks, gynogenesis androgenic, transgenic fish and cryo preservation of gametes. (K3)

PRACTCAL

CO#	Course Outcome
C01	Demonstrate live food Organisms. (K3)
C02	Estimate the composition of aquaculture feeds- Proteins, Carbohydrates and Lipids. (K4)
C03	Analyze artificial and natural gut food intake. (K4)
C04	Prepare flow charts, excersize the identification of hazards and procedures in processing of fish. (K3)

PAPER- CLUSTER - III POST HARVEST TECHNOLOGY

THEORY

CO#	Course Outcome
C01	Explain the concept of fish preservation, cleaning , lowering of temperature, raising of temperature and use of salt. (K3)
C02	Illustrate the methods of fish preservation. (K4)
C03	Explain processing of fish and preservation of fish and fish by products. (K3)
C04	Demonstrate sea weed products such as agar, algil and carrageen. (K3)
C05	Interpret quality control of fish and fishery products. (K3)
C06	Explain about sea food quality assurance and systems and maintain national and international standards. (K3)

PRACTCAL

CO#	Course Outcome
C01	Report the fish farms project after visiting. (K3)
C02	Report the project of a feed manufacturing unit after visiting. (K3)
C03	Report the project of a shrimp hatchery / shrimp farm after visiting. (K3)
C04	Report the project of shrimp processing unit after visiting. (K3)