

B.SC. III ZOOLOGY COURSE OUTCOMES

Zoology Paper- IX

DSE-E29 (Comparative Anatomy of Vertebrates)

CO1: Analyze complex interactions among the various animals of different phyla, their distribution and their relationship with the environment.

CO2: Compare and contrast the anatomical systems of different vertebrate and identify common traits across species or group.

CO3: Recognize the vertebrate's structural principles by studying all body systems of vertebrates in an evolutionary context.

CO4: Learn the anatomical features that distinguish vertebrates from invertebrate system.

CO5: Recognize the vertebrates structural principles by studying all body systems of vertebrates in an evolutionary context.

Zoology Paper- X

DSE-F29 (Molecular Cell Biology and Animal Biotechnology)

After successful completion of the course, the student is expected to:

CO1: Learn about various forms of DNA and Replication of DNA, DNA damage and repair mechanism.

CO2: Understand the concept about Genetic code and character and Codon assignment..

CO3: Understand the process of protein synthesis. To study various type of RNA and process of Transcription and Translation.

CO4: Acquire knowledge about Regulation of gene expression.

CO5: Understand various separation techniques, namely, centrifugation, chromatography, agarose gel electrophoresis, SDS-PAGE

Zoology Paper- XI DSE-F30 (Biotechniques and Biostatistics)

After successful completion of the course, the student is expected to:

CO1: Understand the basic concepts, importance and role of biotechniques in life sciences.

CO2: Explain the range of sterilization techniques, spanning from basic to advanced methods, including filtration, autoclaving, dry heat sterilization, wet sterilization, and radiation.

CO3: Understand working principles of various sophisticated instruments by visiting biotechnology institutions and research centers.

CO4: Perform experiments related to use of various biotechniques studied in theory including sterilization and separation techniques.

CO5: Understand the meaning and importance concepts used in biostatistics, namely, sampling errors, mean, mode, median, probability, standard error and standard deviation .

Zoology Paper- XII DSE-F31 (AQUATIC BIOLOGY)

After successful completion of the course, the student is expected to:

CO1: Knowledge of various types of aquaculture and culture methods.

CO2: understand the Concept on the environment, aquaculture, and fisheries.

CO3: understand the effect of physicochemical parameters on aquatic biology.

CO4: Understanding of fishery science, with a particular focus on the biology, assessment, and management of fish and invertebrate fisheries

CO5: Awareness of the role of Government in aquaculture development.

Zoology Paper- XIII

DSE-E30 (Developmental Biology of Vertebrates)

CO1: understand the complex evolutionary processes and behavior of animals.

CO2: understand the process of development of chick embryo.

CO3: knowledge about organogenesis of selected organs, development of extra embryonic membrane and the nature and physiology of placenta.

CO4: know about the inducer and inductor role in embryogenesis and knowledge of metamorphosis and the process of regeneration.

CO5: Knowledge involves engaging in the direct observation of sperm motility and various stages of chick embryo development and animal placentation

Zoology Paper- XIV DSE-E32 (Immunology)

After successful completion of the course, the student is expected to:

CO1: Describe the concept of immunity and understand the importance of having an immune

system; study innate and acquired immunity in addition to different organs of the immune system

CO2: Analyze and inculcate the fundamental knowledge on immune system and immunological responses to antigens.

CO3: Describe the concept of immunity and understand the importance of having an immune system; study innate and acquired immunity in addition to different organs of the immune system.

CO4: Understanding the immune mechanisms in disease control, vaccination, process of immune interactions.

CO5: Understand the mechanism of antigen-antibody interactions based on structural details to explain humoral immunity.

Zoology Paper- XV DSE-E31 (Applied Zoology - II)

After successful completion of the course, the student is expected to

CO1: Understand the fundamentals of animal sciences, understands the complex interactions among various living organisms.

CO2: Explain different culture methods, namely, pearl culture, sericulture, apiculture, poultry farming and fish culture.

CO3: Learn about commercial aspects of aquaculture by studying fish products and byproducts and study different methods of fish preservation.

CO4: Learn about different diseases caused by different causative agents, namely, fungi, bacteria and protozoa.

CO5: Explain types, life cycles of honey bees and explain methods of apiculture along with commercial importance of bee products.

Zoology Paper- XVI DSE-F32 (Insect Vectors and Histology)

After successful completion of the course, the student is expected to:

CO1: Identify various insect vectors, namely, mosquitoes, houseflies, sandflies, Tse-Tse flies and study their importance in completion of life cycles of various pathogens.

CO2: Able to understand insect vector and host interactions of various diseases like Malaria, Filariasis, Dengue and environmental methods for vector control, biological control.

CO3: Describe the histology and physiology of structure of Tooth, tongue, Salivary glands, Stomach, Duodenum, Ileum, Liver, Pancreas and Kidney.

CO4: Understand the histology of various mammalian organs with the help of available permanent slides.

CO5: Learn about general characters of Phylum Hemichordata and its phylogeny.

B.SC. II ZOOLOGY
COURSE OUTCOMES

Paper V - ANIMAL DIVERSITY-II

CO1. Biodiversity boosts ecosystem productivity where, every species plays an important role.

CO2. Understood the animal classification system characterizes animals based on their anatomy, morphology, and evolutionary history, features of embryological development, geographical distribution and genetic composition of the animal kingdom (Agnatha, Pices, Amphibia, Reptile, Aves and Mammals).

CO3. This classification scheme is constantly developing as new information about species arises. Understanding and classifying the great variety of living species help us better understand how to conserve the diversity of life on earth.

CO4. Understood the various systems like digestive system, mechanism of respiration, circulatory system and parental care in Phylum Vertebrata.

CO5 Study the interactions of animals within ecosystems, focusing on their roles as consumers, predators, prey, and symbiotic partners.

Paper VI - BIOCHEMISTRY

CO1. Understand the detailed concepts of structure and types of DNA and RNA, Carbohydrate, Protein and Lipid metabolism.

CO2. Understand about interactions and interdependence of physiological and biochemical processes.

CO3. Understand the study of enzyme classification and nomenclature, Mechanism of action, Enzyme Kinetics, Inhibition and Regulation, Isoenzymes, Co-enzymes and Cofactors.

CO4. Understand the physiological and biochemical understanding through scientific enquiry into the nature of mechanical, physical, and biochemical functions of humans, their organs, and the cells of which they are composed.

CO5 Understand how different biochemical pathways are integrated within the cell and organism, and how disruptions in these pathways can lead to diseases.

Paper VII- REPRODUCTIVE BIOLOGY

CO1. Student acquired knowledge about anatomical, histological, physiological concept, feature study of male and female reproductive system and fertilization in rat and human.

CO2. Understood about reproductive health and infertility in male and female and its causes, diagnosis and management modern contraceptive technologies.

CO3 Describe the structure and function of male and female reproductive systems in humans and other organisms.

CO4 Compare different reproductive strategies across species, including sexual and asexual reproduction, and their evolutionary significance.

CO5 Discuss ethical issues related to reproductive technologies, genetic modification, and reproductive health policies.

Paper-VIII-APPLIED ZOOLOGY

CO1. Understand the fundamentals of animal sciences, understands the complex interactions among various living organisms.

CO2. Understand the ethical principles and commit to professional ethics and responsibilities in delivering his duties.

CO3. Understand the applied Zoology to one's own life and work.

CO4 Compare anatomical features across different animal groups and explain how these relate to their function and survival.

CO5 Apply knowledge of animal diseases, parasitology, and microbiology to manage and control diseases in livestock, pets, and wildlife.

B.SC. I ZOOLOGY

COURSE OUTCOMES

Paper I: ANIMAL DIVERSITY- I

CO1. Understand the general characters of kingdom protista and its locomotory organelles and locomotion in protozoa.

CO2. Understand the general characters and classify up to classes of phylum Porifera with canal system.

CO3. Understand the general characters and classify upto classes of Phylum Cnidaria and its Polymorphism in hydrozoa.

CO4. Understand the general characters and classify upto classes of phylum platyhelminthes with their life history and its parasitic adaptation.

CO5. Understand the general characters of phylum Annelida with metamerism.

Paper II: ANIMAL PHYSIOLOGY

CO1. Students gain fundamental knowledge of animal physiology.

CO2. Students are taught the detailed concepts of digestion, respiration and excretion, the functioning of nerves and muscles.

CO3. Imparts knowledge about various metabolic and physiological mechanisms of the human body.

CO4. To describe the types of Digestion and the process of carbohydrates, protein, lipid digestion

CO5. To describe the structure of mammalian lungs and heart and its functioning

Paper III: CELL BIOLOGY & EVOLUTIONARY BIOLOGY

CO1. Understand the differences between prokaryotic and Eukaryotic cells.

CO2. Understand the the structure and function of different cell and cell organelles.

CO3 Apply the knowledge of internal structure of cell, its functions in control of various metabolic functions of organisms, Structural and functional aspects of basic unit of life i.e.cell concepts.

CO4.Understanding the theories of Evolutions like Lamarckism, Darwinism, Neo-Darwinism.

CO5.To study Direct Evidences of Evolution and types of fossils, Incompleteness of fossil record, dating of fossils.

Paper IV: GENETICS

CO1. Understand the Mendel's work on transmission of traits, Genetic Variation, Molecular basis of Genetic Information and Mendelian and post mendelian inheritance.

CO2.Understood the Multiple alleles w.r.t. ABO, Rh blood groups and coat colour in rabbit, sex linked inheritance, linkage and crossing over.

CO3.Understood the concept behind genetic disorder, chromosomal mutations- various causes associated with humans and identify chromosomal mutations and in borne errors of metabolism.

CO4. Understood the Sex Chromosomal theory of sex determination, Genetic balance theory, Haploidy, Diploidy mechanism, Environmental sex determination, dosage compensation.

CO5 Study chromosomal abnormalities, such as aneuploidy and structural mutations, and their impact on health and development (e.g., Down syndrome, Turner syndrome).