FYUGP in Zoology (NEP)

Course Outcomes (COs)

Semester	Course Code	Course Name	Course Outcome
I	ZOO-1011	Diversity of Non-Chordates	CO 1: Students will be able to learn about the importance of systematics, taxonomy. CO2: Students will learn structural organization of animals as well as understand the evolutionary history and relationships of different non-chordates through functional and structural affinities.
II	ZOO-1021	Diversity of chordates	CO1: Students will learn about different classes of chordates, level of organization and evolutionary relationship between different sub-phyla and classes, within and outside the phylum. CO2: Students will learn about diversity in animals making students understand about their distinguishing features. CO3: Students will develop deep understanding of the circulatory, nervous and skeletal system of chordates. CO4: Students will know about the habit and habitat of chordates in marine, freshwater and terrestrial ecosystems.
III	ZOO-2011	Principles of Genetics	CO 1: Students will be able to Understand the basic principles of inheritance. CO 2: Students will able to analyze Mendelian Law and gene interactions leading to development of analytical skills and critical thinking enabling the students to present the conclusion of their findings in a scientific manner. CO 3: Students will understand about the mechanisms of mutations, the causative agents and the harmful impact of various chemicals and drugs being used in day-to-day life. CO 4: Students will gain knowledge on genetic and environmental basis of sex determination.
IV	ZOO-2021	Compulsory: Animal Taxonomy, Systematics & Biostatistics	CO 1: Students will understand the general principles of taxonomy and systematics CO 2: Students will understand about the importance of Zoological nomenclature and its rules CO 3: Students will understand the importance of systematics in biology and comprehend the taxonomic categories and explain the concept of species

			CO 4: Students will acquire basic knowledge of phylogeny and understand important terminologies to represent phylogenies
	ZOO-2022	DSE-Animal Physiology & Endocrinology	CO 1: Students will understand the principles of normal biological function of the animal body. CO 2: Students will understand basic animal physiology and correlate it with the various histological structures. CO 3: Students will understand the homeostasis in animals in response to changes in their external environment. CO 4: Students will perform practical related to animal physiology.
	ZOO-2023	DSE2-Principles of Ecology & Evolution	CO 1: Students will learn about the key concepts in ecology with emphasis on historical perspective, role of physical factors and concept of limiting factors etc. CO 2: Students will understand about the population characteristics, population dynamics, growth models and interactions. CO 3: Students can recognize the community characteristics, ecosystem development and climax theories. CO 4: Students will know about the types of ecosystems, food chains, food webs, energy models, and ecological efficiencies. CO 5: Students will learn about the basic principles of ecology in wildlife conservation and management. CO 6: Students will gain scientific quantitative skills, evaluate experimental design, read graphs, and analyse and use information available in scientific literature.
	ZOO-2025	DSE 4-Animal Behaviour and Chronobiology	CO 1: Students will be able to acquire a comprehensive understanding of the behaviour of animals and gain knowledge on profiles of behavioural biologists and their contributions to the field of animal behaviour. CO 2: Students will understand and analyse the causes and patterns of behaviour. CO 3: Students will understand the social nature of animals and communication among individuals of animal societies and utilise scientific methods of studying animal behaviour. CO 4: Students will understand basic terms and concepts of chronobiology and comprehend the significance of biological rhythms
V	ZOO-3011	Compulsory: Fundamentals of Biochemistry	CO 1: Students will be able to understand the basic principle, structure and function of biomolecules like carbohydrates, proteins and nucleic acids. CO 2: They will also be able to understand the role of these molecules in the functioning of animal systems. The students will learn about the characteristics, kinetics, regulation and

			inhibition of enzymes-the biological catalysts and as such will have a brief overview of the biochemical system of the body. CO 3: They will also gain practical knowledge about the different functional groups present in these molecules.
	ZOO-3012	DSE6-Biochemistry of metabolic processes & regulation	CO 1: Students will be able to understand the principles of catabolic and anabolic processes. CO 2: Students will understand carbohydrate, protein and lipid metabolism and correlate it practical observations. CO 3: Students will understand the process of energy production in the body. CO 4: Students will learn practicals related to metabolic processes
	ZOO-3013	DSE7-Entomology & Fisheries	CO 1: Students will be able to identify different insects and classify them based on their morphological characters CO 2: Students will get an idea about diversity and causes of success of insects on earth CO 3: Students will get concept on the common vectors of human diseases and common phytophagous pests CO 4: Students will identify and characterize economically important freshwater fishes of NE India CO 5: Students will acquire basic knowledge on morphology and physiology of fishes CO 6: Students will compare and contrast capture fisheries resources of India CO 7: Students will understand the utility and application of different fishing gears CO 8: Students will gain knowledge on the impact of climate change on fisheries CO 9: Students will understand methods and types of culture fisheries CO 10: Students will learn about the induced breeding of Indian Major Carps including collection and preservation of fish pituitary gland, and broodstock and hatchery management CO 11: Students will acquire practical knowledge on the role soil and water quality in aquaculture CO 12: Students will identify the importance of fish as a model organism in research
	ZOO-3014	DSE 8-Immunology	CO 1: Students will be able to understand about the various cells and organs of the immune system. CO 2: Students will understand the concepts of antigens, antibodies and their interactions. CO 3: Students will gain knowledge on the functioning of the immune system and the role of vaccines in preventing diseases. CO 4: Students will learn about practicals related to immunology and its functioning in mammals.

VI	ZOO-3021	Compulsory: Cell Biology	CO 1: Students will learn about different cell types. CO 2: Students will acquire knowledge about the composition of cells and cellular compartments and detail study about the functioning of these organelles. CO 3: Students will acquire knowledge about cellular energetic and concept of protein sorting CO 4: Students will learn about the different level of DNA packaging within the cells and also learn about different types of chromosomes
	ZOO-3022	DSE11-Developmental Biology	CO 1: The students will be able to understand about the role of mitosis and meiosis cell division, cellular differentiation during gametogenesis. CO 2: The students will be able to understand how fertilization happens and the factors that affect fertilization event. CO 3: The students will be given exposure to understand the basic embryonic development and organogenesis. CO 4: The students will be able to understand the role different hormones and of cellular
	ZOO-3023	DSE12-Wildlife Conservation & Management	CO 1: Students will become aware of the importance of wildlife in general, and its conservation and management in particular. CO 2: Students will comprehend the application of the principles of ecology and animal behaviour to formulate strategies for the management of wildlife populations and their habitats. CO 3: Students will understand the management practices required to achieve a healthy ecosystem for wildlife populations along with an emphasis on conservation and restoration. CO 4: Students will know the key factors for the loss of wildlife and important strategies for their in-situ and ex-situ conservation. CO 5: Students will recognize the techniques for estimation, remote sensing, and Global Position Tracking for wildlife. CO 6: Gain knowledge about wildlife diseases and quarantine policies. CO 7: Students will know about the Protected Area Networks in India, Ecotourism, Ecology of perturbation, and Climax persistence. CO 8: Students will perform critical thinking, literature review; scientific writing as well as presentations; and participation in citizen science initiatives with reference to wildlife
	ZOO-3024	DSE13-Computational Biology	CO 1: Students will understand the basic principles of biology, computer science and mathematics. Existing software effectively helps students to extract information from

			large databases and to use this information to solve biological problems. CO 2: Students will learn about the intersection of life and information science, the core of shared concepts, language of structure and function relationship, gene expression, phylogenetic analysis through database

Programme Outcomes (POs)

PO 1: This will expand both the fundamental theoretical understanding and practical knowledge of zoology.

PO 2: It will assist students in developing the foundational concepts necessary for future projects and advanced studies.

PO 3: It will enable students to comprehend the principles related to different applied sciences.

PO 4: It will generate scientific approach to address problems in biology and sustainable use of resources for human welfare.

PO 5: It will expand application of knowledge and skills in entrepreneurship.

PO 6: It will contribute to the conservation of wild animals and develop the economic value of the zoological resources present in the environment.