Rayat Shikshan Sanstha's

Dr. Patangrao Kadam Mahavidyalaya, Ramanandnagar (Burli)

Department of Zoology

Course Outcomes (COs)

Name of program	Paper No.	Course Code	Course Name	Course Outcomes
B. Sc. I	Paper I	Zoo 101	Animal Diversity	Understand the concept and importance of biodiversity.
				Enable the students to identify the similarities and differences among the animals in different Phyla and classes.
				Develop sensitivity for the conservation of biodiversity in their day-to-day life.
				Equip the students with the skills of dissection.
	Paper II	Zoo 102	Cell Biology	Understand the general organization of cell organelles and their functions.
				Apply their knowledge to study the functioning of a cell and cell divisions and its regulation.
				Analyze the role of cell organelles and cell cycle checkpoints with examples of anemia, diabetic wounds, and cancer.
				Equip the students with skills like handling the microscope, micrometry, staining techniques, etc.
	Paper III	Zoo 201	Genetics	Understand heredity and variation.
				Apply their knowledge to draw the genetic crosses based on patterns of heredity.
				Culture the Drosophila and handling skills among the students.
				Enable the students to develop a gene map using data of crossing over and linkage study, draw, and analyze pedigree c. analyze karyotypes.
	Paper IV	Zoo 202	Ecology, Ethology Evolution and Entomology	Understand The Basic Concepts.
				Enable The Students To Identify The Amazing Features Of The Insect World.
				Train Students To Arrange The Animals On A Geological Time Scale.
				Mold The Student To Apply Their Knowledge To Construct Food Chains, Food Webs, And Ecological Pyramids.
B. Sc. II (Major)	Paper V	MJ-V	Fundamentals of Chordates	Understand the Morphology and anatomy of Chordate.
				Enable the students to identify the similarities and differences among the animals in different classes of Chordate animals.
				Apply their knowledge to study the functioning of different organs and systems of chordates.
				Enable the students to identify venomous and non-venomous snakes.
	Paper VI	MJ-VI	Biochemistry	Enable the students to understand the structure, types and classification of proteins, carbohydrates and fats.
				Enable the students to understand enzymes and enzyme action.
				Metabolic pathways of various bio-molecules and their functional significance

	VSC	VSC-I	Domestic and Pet Animal Feed Preparation	Understand the student the dietary needs of animals
				Enables the students to design the feed for the animals according to their physiological conditions.
				Acquire the skill of feed preparation of animals.
				To develop entrepreneurship qualities in the field of animal feed production
	SEC	SEC-I	Poultry Farming	To understand different breeds and techniques in poultry farming
				To acquire the skills of poultry management.
				Students gain confidence to pursue entrepreneurship in farming and assess the economics of a farm.
	OE-III P		Fish Aquarium construction & Maintainanc ece	Acquire knowledge of ornamental fishes which is highly professional and attractive avenues for youth.
				Enable to acquire skills of aquarium setup and aquarium fish keeping.
				Enable to acquire skills of Fish transportation and management.
	Paper VII	MJ- VII	Reproductive Biology	Understand the structure, organization, and functions of male and female reproductive systems in animals.
				Enable to explain the hormonal regulation of reproduction and its role in gametogenesis, ovulation, and spermatogenesis.
				Analyze the mechanisms of reproductive cycles, including estrous and menstrual cycles, and their physiological significance.
				Understand the principles and applications of assisted reproductive technologies (ART) such as IVF, ICSI, and surrogacy.
				Explore the causes and treatments of infertility in males and females, along with emerging diagnostic tools.
				Learn about reproductive health, contraceptive methods, and their societal implications.
	Paper VIII	MJ-VIII	Applied Entomology	Acquire the knowledge of non-beneficial insects.
				Understand the interaction of insect vectors with humans and spread of diseases.
				Aware the managements and control of vector and vector borne diseases.
B. Sc. II (Major)	Paper V	MN-V	Fundamental s of Non Chordates	Understand structure and functions of Protozoa (Paramecium)
				Analyze the anatomical and physiological systems in Annelida (Earthworm)
				Compare and contrast functional adaptations in diverse invertebrate groups
				Explore behavioral and structural specializations in minor invertebrate
				Recognize the medical and economic significance of invertebrates
	Paper VI	MN-VI	Biodiversity, Wildlife Management and Toxicology	Understand the Concept and Importance of Biodiversity
				Demonstrate Knowledge of Wildlife Management Principles
				Describe Key Features of National Parks and Sanctuaries in India
				Understand Basic Principles of Toxicology
				Develop Awareness of Environmental and Wildlife Conservation Challenge

	Paper VII	MN- VII	Physiology, Endocrinology and Histology	Understand fundamental principles of animal physiology
				Explain the mechanisms of respiration in vertebrates
				Understand circulatory system functions and blood physiology
				Comprehend excretory physiology and osmoregulatory mechanisms
				Identify sources, roles, and deficiency symptoms of vitamins
				Understand the endocrine system and hormonal regulation
				Identify and describe the histological structure of mammalian digestive organs
				Apply knowledge of physiology, endocrinology, and histology to understand health and disease
	Paper VIII	MN-VIII	Economic Zoology and Parasitology	Describe the economic importance of major fin fishes such as Rohu, Catla, Mrigal, and Tilapia, and explain their role in aquaculture and nutrition.
				Identify commercially important shellfishes like lobster, prawn, crab, mussel, and sepia, and explain their significance in the seafood industry.
				Illustrate the process of fish farming, including the construction and maintenance of fish farms, and evaluate various fishing crafts and gears used in the industry.
				Recognize different breeds of goats, and demonstrate knowledge of their feeding, housing, and economic value in rural and commercial farming systems.
				Understand basic principles of dairy science, including the production and processing of milk and various milk products.
				Define and classify parasites based on their nature and host interaction.
				Describe the morphology, anatomy, life cycle, and reproductive features of Ascaris, and understand its pathogenicity and control measures.
				Analyze the structural and physiological adaptations of parasites, particularly Ascaris, for their survival within the host.
	SEC	SEC- II	Dairy Farming	Students gain knowledge of different breeds and their selection in dairy farming.
				Acquire the skills of Dairy farm management
				Acquire the skills of shed construction and maintenance
				Students gain self-confidence to become dairy entrepreneurs.
	OE	OE-IV P	Apiculture	Understand honey bees life cycle, their social organization, and the importance of different species
				Acquire skills of handling basic tools, equipment's, and management of beehives
				To understand the importance and economy of products and by-products of beekeeping
				To develop entrepreneurial skills for self-employment in beekeeping
				Acquire the skills for scientific management of honey bee colonies
B.Sc.-III (NEP/ CBCS 1.0)	X	DSE-F29	Molecular Cell Biology and Animal Biotechnology	Explain DNA and RNA structures, replication processes, and DNA repair mechanisms.
				Comprehend the regulation of gene expression and the operon concept
				Analyse the genetic code, including its properties and codon assignment.
				Explore protein synthesis, covering transcription and translation in prokaryotes and eukaryotes.

B.Sc.-III (NEP/ CBCS 1.0)	XI	DSE-F30	Biotechniques and Biosatistics	Assess the production of cloned and transgenic animals and their applications
				Understand the principles and applications of animal cell culture and stem cells
				Apply biostatistics concepts such as classification, frequency distribution, and measures of central tendency
				Analyze biological data, including graphical preeman and correlation.
	XII	DSE-F31	Aquatic Biology	Explore different aquatic biomes and Bcosystems
				Analyze the adaptations of aquatic organisms
				Understand early development in frogs cleavage, gastrulation, and metamorphosis) Explore chick embryology, covering Fertilization, organogenesis, and foetal membranes
	XIII	DSE-E30	Developmental Biology	Explain cousers, effects, and management of samine gameragoneis, types of eggs, and Fertilization processest
				Understand early development in frogs cleavage, gastrulation, and metamorphosis) Explore chick embryology, covering Fertilization, organogenesis, and foetal membranes

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Programme Outcomes (POs, PSOs)

Program Outcomes Zoology

Zoology is one of the most fundamental branch of biology to learn and understand animal diversity to appreciate the variability in relation to their morphology, anatomy and behaviour among different animals. Students will be equipped to learn and know about different human systems, their coordination and control.

- This course will also provide a platform to learn classical genetics to understand distribution of different traits among populations, their inheritance ethnicity and can correlate with contemporary and modern techniques like genomics, metagenomics, genome editing and molecular diagnostic too.

- Practical and theoretical skills gained in this course will be helpful in designing different public health strategies for social welfare.

- After completing and graduating with a degree in Zoology, the students have a wide scope in different fields.

- Apart from pursuing for higher studies (master in the subject with specialization in different branches in Zoology), the students can also opt from a variety of related branches of science: Related paramedical fields such as health sciences. Agricultural sciences and Master in Forestry Master in Food technology and Processing Wildlife officers Marine Biologist Professional field such as Poultry, Sericulture, apiculture, Pisciculture, dairy etc.

Program Specific outcomes Zoology

After successfully completing this course, students will:

- Understand the nature and basic concepts of Cell Biology, Genetics, Taxonomy, Physiology, Embryology, Ecology and Applied Zoology.

- Gains knowledge about research methodologies, effective communication and skills of problem solving methods.

- Improved the knowledge about animals' special adaptations and evolutionary relationship.

- Improved information about external morphology and anatomy of animals including human being.

- Take appropriate steps towards conservation of endemic and endangered animal species. Develop ability in application of the acquired knowledge to improve applied zoology to make the Nation self-reliant and sufficient.

• Aware about natural resources and their importance in sustainable development. Have ability to engage in independent and life-long learning in the broadest context of technological change.