

M.SC ZOOLOGY

PROGRAMME SPECIFIC OUTCOMES

PSO1	Understand the various biochemical aspects of cell including molecular level regulation
PSO2	Analyse the developmental stages of organisms connecting their physiological reactions and immunological advancements
PSO3	Interpret the various interactions on ecological and ethological level; assess and classify them with biostatistical methods
PSO4	Identify and evaluate the growth and developmental aspects of microbes and utilize them in biotechnology through biophysical methods
PSO5	Develop knowledge in fishes by understanding their ecological habitats and culture practices.

COURSE OUTCOMES

PROGRAMME	PROGRAMME SPECIALIZATION	COURSES	OUTCOME
M.SC	ZOOLOGY	VPZO1C01 - Biochemistry and Cytogenetics	Analyse and understand the chemistry and functions of biomolecules
			Understand the metabolism and biosynthesis of biomolecules
			Understand the basic cellular, molecular and genetic concepts of development.
			Understand the structural organization and function of intra cellular organelles
		VPZO1C02 - Biophysics and Biostatistics	Observe and understand the matter and mechanism of cells and study of functional systems, structural organisation and physical basis of sound transmission in the ear
			Observe and understand the working principle of different separation techniques, biophysical methods, electrophysiological methods and microscopy
			Analyse and understand the applications of biostatistics in research and study about the various type of statistical methods
			Understand the basic concept of gravitation force, nanotechnology and radiation biology

		VPZO1CO3 - Systematics and Evolution	Understand the definition and basic concept of taxonomy, classification, procedures, species concept and different type of taxonomic characters of organisms.
			Explain the zoological nomenclature, newer systematic trends, ethics in taxonomy and taxonomic impediments.
			Understand natural selection , mechanisms and tempo of evolution
			Understand molecular evolution and evolutionary trends of organisms
		VPZO2C04 - Physiology	Interpret and analyse nutrition and utilization of energy from biomolecules
			Understand functional systems and disorders of nervous and cardiovascular systems
			Understand the structure and functions of sense organs
			Understand the thermoregulation mechanisms and acclimatization
		VPZO2C05 - Ecology and Ethology	Analyse and understand the natural history of Indian subcontinent, various terrestrial biomes, biogeographical zones and island biogeography
			Understand the basic concepts and levels of organisation in ecology
			Study of animal behaviour and its evolution
			Observe and understand social behaviour of termites and primates
		VPZO2C06 - Developmental Biology and Endocrinology	Understand the basic cellular, molecular and genetic concepts of development.
			Analyse and understand the developmental stages of various organisms along with the factors influencing them.
			Understand the structure of endocrine glands, synthesis and secretion of hormones, mode of action, control
			Understand the pathophysiology of hypo and hyper secretions of endocrine glands

		VPZO3CO7- Molecular Biology	Explain replication, transcription and translation of genetic material
			Understand the role of gene families transposable genetic elements
			Understand eukaryotic and organelle genome
			Understand the molecular mechanism involved in eukaryotic genome and cancer
		VPZO3CO8 - Immunology	Explain the role of molecules involved in immune mechanism
			Understand maturation of immunological cells leading to immune response.
			Understand the role of mhc in immune response
			Explain immunological disorders
		VPZO3E11- Fishery Science I- Taxonomy, Biology Physiology & Ecology	understand fish taxonomy
			Understand the fish biology
			Explain the physiology of fish
			Understand the ecology of sea
			Understand on brackish and inland water
		VPZO4C09, Microbiology and Biotechnology	Study of history and scope of Microbiology and its taxonomy
			Understand bacteria, virus,its pathological effects and their control measures
			Understand bacterial metabolism
			Understand the role of microbes in fermentation, waste water treatment, bioremediation biogas plant and generation of energy sources
			Understand DNA sequencing, Genetic Engineering, gene silencing and cloning techniques
			Interpret biotechnology in animal health care and environment
		VPZO4E21 - Fishery Science II	Understand the capture and culture fishes, Designing of aqua farms
			Understand the nutrition of fishes and water quality management

			Understand the reproduction and genetic selection
			Explain different aqua cultural practices
			Explain aquarium and major fish diseases
		VPZO4E31, Fishery Science III	Understand commercial fishing methods
			Understand the nutritional value of fin fish and shell fish , its preservation and processing techniques
			Explain the post mortem changes and spoilage.
			Explain the role of fishery institutes in education, research, development , export and quality control
			Understand fishery management and international marketing.

B.SC ZOOLOGY

PROGRAMME SPECIFIC OUTCOMES

PSO1	Understand the diversity, behaviour, distribution, economic importance, and environmental aspects of animal kingdom
PSO2	Understand the genetical, physiological, toxicological and immunological aspects of life
PSO3	Explain the conservation and management of wild life
PSO4	Understand the advanced biological techniques

COURSE OUTCOMES

PROGRAMME	PROGRAMME SPECIALIZATION	COURSES	OUTCOME
B.SC	Zoology (Core Courses)	VZO1B01, Animal Diversity - Non-Chordata PART I	Understand the animal diversity, adaptations and functional anatomy of protists, cnidarians, platyhelminthes, aschelminthes and minor phyla
			Understand classification of animals
			Identification of animal specimens based on theoretical knowledge and gaining procedural skills

		VZO2B02 - Animal Diversity- Non- Chordata PART II	Understand the animal diversity, adaptations and functional anatomy of annelids, arthropods, molluscs and echinoderms
			Study onychophora and hemichordates
			Explain coelomate minor phyla
			Identification of animal specimens based on theoretical knowledge and gaining procedural skills
		VZO3B03 - Animal Diversity , Chordata - PART I	Classification and study of protochordates, pisces, amphibia and reptiles
			Describe the morphological, anatomical and ecological adaptations of protochordates, pisces, amphibia and reptiles
			Examine morphological and osteological aspects of study specimens and their classification
		VZO4B04 - Animal Diversity Chordata - PART-II	Classification and comparison of aves and mammals
			Describe the morphological, anatomical and ecological adaptations of birds and mammals
			Examine morphological and osteological aspects of study specimens and their classification
			Field study on birds of the locality
		VZO5B05, Environmental Biology, Wildlife Conservation and Toxicology	Understand problems of sustainable resource usage, conservation of endangered biota, preservation of biodiversity
			Understand the transnational character of environmental problems
			Understand the interdisciplinary nature of ecosystem .
			Knowledge of fundamental principles toxicology .
			Understands biological diversity at gene, population and species level

		VZO5B06 - Ethology, Evolution and Zoogeography	Describe the patterns of behavior and biological clocks in animals
			Understand the evidences , trends, concepts and theories in organic evolution
			Examine the course of evolution, speciation and isolating mechanisms
			Familiarise the different zoogeographical realms and biogeographical zones and its animal distribution
		VZO5B07 - Cell Biology and Genetics	Comprehensive and detailed understanding of the basis of heredity
			Understand the genetic methodology, quantification of heritable traits in families and populations, provide insight into cellular and molecular mechanisms
			Compare the structure and function of cells from different domains
			Knowledge of instruments and techniques used in cytology
			Understand the process of cell division, the role of molecules and cells in the control of cell division
		VZO5B08, GENERAL Methodology in Science, Biostatistics and Informatics	Understand some basic concepts of research and its methodologies
			Identify appropriate research topics, select and define appropriate research problem and parameters and write a research report, thesis and research proposal
			Define the principal concepts about biostatistics and identify convenient sampling methods
			Collection and interpretation of data and apply hypothesis testing via some of the statistical distributions
			Familiar with digital knowledge
			Apply the knowledge to collect various biological data

		VZO5D01, Reproductive Health and Sex Education	Familiarise the factors affecting health
			Apply the knowledge to lead a healthy lifestyle
			Understand various contraceptive methods
			Understand various lifestyle diseases
			Redress problems associated with health and sex thereby promoting fitness and wellbeing
		VZO6B09, Biochemistry	Understands the fundamental biochemical principles, such as the structure/function of biomolecules, metabolic pathways, and the regulation of biological/biochemical processes
			Accure proficiency in basic laboratory techniques in both chemistry and biology, and be able to apply the scientific method to the processes of experimentation and hypothesis testing
		VZO5B10 - Physiology and Endocrinology	Understand the function of various systems
			Study of endocrine systems, its functions and diseases due to endocrine disorder s
		VZO6B11-Molecular Biology and Bioinformatics	Understand the gene,DNA sequences genetic code and human genome project
			Understand the process of protein synthesis and regulation of gene action
			Knowledge of awareness on the pros and cons , major databases and search engines in bioinformatics
			Understand the application of bioinformatics in sequence similarity search,genomics, proteomics and metabolomics
		VZO5B12 - Reproductive Biology, Developmental Biology and Teratology	Understand the reproductive system in human beings
			Study the various types of placenta and the ability to explain various prenatal diagnosis

			Familiarise with various stages and principles involved in the developing embryo
			Understand the initial developmental procedures involved in amphioxus, frog, chick and man
			Familiarise with various techniques and tools of embryology
			Understand the teratological defects in development
		VZO5B13, Biotechnology, Microbiology and Immunology	Understand the importance of biotechnological tools and techniques in various fields
			Familiar with the tools and techniques used in microbiology and pathogenic microbes
			Understand the integral role of microorganisms in causing diseases
			Distinguish innate immunity and acquired immunity
			Identify major components of the immune system at organ, cellular and molecular levels
		VZO6E01 - Aquaculture, Animal Husbandry and Poultry Science	Familiarise the freshwater, brackish and marine water aquaculture of finfishes and shell fishes
			Identify crafts, gears, fish products, by products, nutrient value, preservation techniques and fish diseases
			Understand white revolution, dairy processes, composition and nutritive value of milk and dairy products and milk adulteration
			Understand indigenous and exotic poultry breeds, poultry farming, feeding, feed formulation, cage construction.

B.SC	ZOOLOGY (COMPLEMENTARY Y COURSE)	VZO1C01 - Complementary Course I - Animal Diversity and Wild life	Study of classification of animals
			Identify animal phyla
			Explain the wild life and conservation aspects
			Identification of animal specimens based on theoretical knowledge and gaining procedural skills
		VZO2C02- Complementary Course II - Economic Zoology	Study of human parasites and mode of infection
			Understand pest and vectors and control measures
			Study of aquaculture, poultry and animal husbandry
			Identification of human parasites and vectors, pest, economically important fin fish and shell fish based on theoretical knowledge
		VZO3C03 - Complementary Course III - Physiology, Toxicology and Ethology	Understand the function of various systems
			Understand animal behaviour
			Understand toxicants and public health issues
			Dissections of animal specimens and gain practical knowledge and skill
		VZO4C04 - Complementary Course IV - Genetics and Immunology	Understand human genetics and cytogenetics of cancer
			Understand gene, gene action, genetic engineering and biological techniques
			Identify of immune system and its action in health and diseased conditions
			Identify karyotype and genetic disorders