Yogoda Satsanga Palpara

Mahavidyalaya

Dept. of Zoology(General)

Programme Outcome (PO):-

Students will be able to:-

- ***To embolden curiosity in the students for Zoology.***
- ***To make conscious amongst students for the basic &applied areas of Zoology.***
- ***To demonstrate and applied the fundamental knowledge of the basic principles of major field of Zoology.***
- ***To apply knowledge to solve the issues related to animal science.***
- ***To take appropriate steps towards conservation of endemic and endangered species.***
- ***To inculcate good laboratory practices in students and to train them about proper handling of lab instruments.***

Programme Specific Outcome (PSO):-

Students will:-

- ***Understand the basic nature and basic concepts of Taxonomy, Ecology, Cell biology, Physiology, Bio-chemistry, Immunology, Development biology, Genetics, Molecular biology, Biotechnology, Applied Zoology.***
- ***Perform procedures as per laboratory standards in the areas of taxonomy, physiology, ecology, cell biology, entomology, nematology, applied zoology, genetics, bio-chemistry, immunology and animal biotechnology.***

- ***Understand the applied biological science or economic zoology such as Sericulture, Apiculture, aquaculture, rDNA technology for their career opportunity.***
- ***Recognized the relationships between structure and functions at different levels of biological organisation like molecular level, cellular level, tissue and organ-system level, genetic level, physiological level, population level, community, ecosystem, landscape and biosphere levels for major groups of animal.***
- ***Drawing upon this knowledge they are able to give specific examples of physiological adaptation, development, reproduction, and behaviour of different forms of life.***
- ***Understand and appreciate the environment & ecological services of life on earth.***
- ***Contributes the knowledge for nation building.***

Course Specific Outcome of Zoology (CSO):-For General			
Semester	***Paper/Course***	***Name of the paper/course***	***Course outcome***
Semester-I	*DSC-1A*	*Animal Diversity*	• Understand the basic concept of classification, taxonomy & systematics of different taxa. • Understand the evolution, history of phylum & their phylogenetic relationship. • To study the external as well as internal characters, structure & physiological processes of non chordates and chordates. • Understand evolutionary history and relationships of different non chordates and chordates through functional and structural affinities. • Appreciate basic concept in life-functions among various groups of animals in phylum chordates, like- parental care in amphibian, biting mechanism of snakes, flight adaptations of birds etc. • Comprehend the economic importance of animals, their interaction with the environment and role in the ecosystem. • Improve knowledge & awareness about many pathogenic invertebrate parasites and their pathogenesity, treatment measures & prevention. • Enhance the collaborative learning and communication skills through practical sessions, team work, assignments and projects.
			• Upon completion of the course, students should be able to: Explain comparative

Semester-II	*DSC-1B*	*Comparative Anatomy and Development Biology of vertebrates*	account of the different vertebrate system. • Recognize and explain the pattern of vertebrate evolution, organisation and functions of various systems. • Students should learn the comparative account of integument, skeletal components, their functions and modification in different vertebrates. • To emphasize the knowledge about evolution of heart, modification in aortic arches, structure of respiratory organs used in aquatic, terrestrial and aerial vertebrates; and digestive system and its anatomical specialisations with respect to different diets and feeding habits. • To study the comparative account of brain, succession of kidney, evolution of urinogenital ducts etc. • Develop critical understanding how a single celled fertilized egg become an embryo and then fully formed adult by going through three important processes of cell division, cell differentiation and morphogenesis. • Get in depth understanding about different mode of cell-cell communication. • To develop the knowledge about brain and eye development of vertebrate. • Advanced understanding of activity and function of genes under different cellular environment.
			• To develop a working knowledge of the major physiological system, and to associate anatomical areas with their

Semester-III	*DSC-1C*	*Physiology and Biochemistry*	specific function. • Learn an integrative approach to understand the interactions of various organ systems in the complex overall functioning of the body. • Students will know the physiology of digestion, respiration, renal physiology, blood & physiology of heart. • Students will learn about the physiology of reproduction, their hormonal regulations and structures and function of different endocrine glands. • Understand the molecular basis of life. • Understand the structure and biological significance of carbohydrates, amino acids, Proteins and lipids and their metabolism. • Understand the concept of enzyme, its mechanism of action and regulation.
	SEC-1	*Apiculture*	• To gain knowledge about apiculture. • To provide scientific knowledge of profitable farming. • To equip the students with self employment capability. • To understand the nutritional value of honey. • It helps to study storage and marketing of bee-products.
	DSC-1D	*Genetics and Evolutionary*	• Elucidate the principles of Mendelian genetics and its extension. • Become aware and gain knowledge about linkage, crossing over, recombination and chromosomal mapping. • Understand the cause and effect of alterations in chromosome number and

Semester-IV		*Biology*	structure. • Recognize and explain how sex is determined in Drosophila and human and also explain the Dosage compensation. • Able to solving the problems related to – measures of central tendency, recombinant frequency, linkage intensity, interference and coincidence. Studying analysing and solving the hypothetical tests like Chi-square test, pedigree analysis etc. • Understand the evidences of organic evolution by anatomical embryological list, paleontological, physiological, genetics and molecular biology evidences. • Understand the theories of organic evolution, isolation, and speciation. • Gain knowledge about population variations, genetic drift, natural selection, founder effect and bottleneck effect. • Gain knowledge about background extinctions and mass extinctions of various species. • Learn about the origin and evolution of man and molecular analysis of human origin.
	SEC-2	*Aquarium Fish Keeping*	• To comprehend the potential scope of Aquarium Fish Industry as a cottage industry. • Provide knowledge of ornamental fish breading which is highly professional attractive avenue for youth. • To be able to identify and differentiate the different (freshwater, brackish, and marine) aquarium/ornamental fish e.g.

			Guppy, Angel fish, Black Molly, Ray fish, Butterfly fish etc. • To be able to formulate the fish food that provides with complete nutritional benefits. • Develop the knowledge of live fish transport, conditioning, packaging method. • To be able to analize the required budget to set up a well maintained home aquarium. • Become aware and gain knowledge of transgenic fish and Zebra fish (which is a model organism in research).
Semester-V	*DSE-1A*	*Applied Zoology*	• Understand the fundamentals of host parasitic relationship and Zoonosis. • Understanding of fundamental complement of numerous disease whish has significant impact on human health. • Understanding of insect vector host interactions of many important diseases like malaria, amoebiasis, filarial, etc. • Course gives insight into physiology, reproduction, economic and medical importance of insect vector and their control measures. • Understand the modern techniques and methods of fishery industries. • Attained knowledge about preservation and artificial insemination in cattle, synchronisation of estrus in cattle and poultry farming management.
	DSE-1A OR	*Aquatic Biology*	• Students will acquire a broad concept on different aquatic ecosystem. • Demonstrate the morphometry, Physico-

			chemical characteristic and nutrient cycles of lakes ecosystem. • Demonstrate skill at identifying organisms found in marine and aquatic environments. • Gain knowledge about conservation and management principles for conservation and sustainable use of aquatic resources.
	DSE-1A OR	*Immunology*	• Develop their understanding on the concepts on health and diseases, cells and organs of the Immune system gain, knowledge of immunological processes at a cellular and molecular level. • Learn the different type of immunity, Structure and functions of immunogens and immunoglobulins antigen-antibody interaction, monoclonal antibody etc. • Understand the role of cytokines in immune cell activation, significance of Major Histocompatibility Complex in terms of immune response. • Be able to provide an overview of the interaction between the immune system and pathogen. • Understand the vaccines, their historical perspective, types of vaccines and modern advances on vaccination and immunization
	SEC-3	*Medical Diagnostics*	• To familiarize the students regarding various dimensions of medical lab technology and career opportunities available in this field. • Understand about composition of blood, blood born diseases, diagnostic method used to analysis of blood.

			• To be able to prepare blood smear and enumerate the blood cell count, determining the E.S.R. • Learn about physical characteristics of Urine and abnormal constituents of urine. • Learn special biochemical investigations of endocrine disorders like Diabetes. • Acquired theoretical knowledge of medical imaging e.g. X-Ray, PET, MRI and CT scan.
	SEC-3 OR	*Research Methodology*	• Understanding of scientific method, concepts and steps in research. • Able to differentiate between the quantitative and qualitative research and understand different types of Research Design. • Understand the various techniques of Data collection – Observation, Questionnaire, Interview Schedule, Case study, Social Survey, Content Analysis. • Describing various types of sampling. • Understand the Intellectual Property Rights- Bio piracy, Copyrights, Patent, Traditional Knowledge and Plagiarism.
Semester-VI	*DSE-1B*	*Animal Biotechnology*	• Understand the concept of genomics (Prokaryotic and Eukaryotic genome). • Gain insight into the molecular techniques in gene manipulation. • Use or demonstrate the basic techniques of biotechnology like DNA isolation, PCR, transformation, restriction digestion etc. • Get-in-depth understanding of genetically modified organisms' viz. production of cloned and transgenic animal and its application.

			• To develop the knowledge about the animal cell culture techniques and molecular diagnosis of genetic diseases.
	DSE-1B OR	*Reproductive Biology*	• Students will learn about the physiology of reproduction, their hormonal regulations and structures and function of different endocrine glands. • Learn about mechanism and regulation of gonadal hormone, development and differentiation of gonads, genital duct and external genetalia. • To describe the anatomy and histology of male and female reproductive system of rat and human and explain the processes of gametogenesis. • Will be able to describe the hormonal, tissue and behavioural changes that occur across the menstrual cycle and explain how these are regulated. • Learn about the mechanism of pregnancy, parturition, lactation and its hormonal regulation. • Be aware to Infertility, modern contraceptive technology, demographic terminology used in family planning and learn about different assisted reproductive technology e.g. GIFT,ICSI,ZIFT,PROST etc.
	DSE-1B OR	*Insect, Vector and Diseases*	• Imparts knowledge of Insect morphology and classification role of Insects as vectors. • Gain knowledge about various disease related vectors and their impact on human health. • Illustrate the role of household insects in

			relation to human health. • Will be able to identify vector-host-pathogen relationships in arthropod born diseases. • Study the different vector born diseases(Malaria, Dengue, Filariasis, Phlebotomus fever, Trench fever, Typhus fever etc.) causes, control and prevention measures.
	SEC-4	*Sericulture*	• To provide scientific knowledge about sericulture as profitable farming. • Understand the cultivation of mulberry plants, pest, diseases and control measures. • To develop the knowledge about quality and processing of silk. • To analyze the importance of sericulture in entrepreneurship development and prospectus of sericulture in India.