**Program Specific Outcomes PSO**

**M.Sc. Zoology**

**Specializations**- 1 Ichthyology

 2 Entomology

**Students in M.Sc. with Zoology would be able to-**

**PSO1**  Understand Nature, environment natural resources and their conservation, Classification & Behaviour of different animals, Human genetics, Cytology and Evolution.

**PSO2**  Apply the wide range of subject based skills to various fields that provide a base for future career in disciplines such as Health Sciences, Agriculture, Environmental Management, Biotechnology, Publishing ,Teaching and Research.

**PSO3**  Distinguish between the Structure, Function, Behaviour and evolution of different animals.

**PSO4** Perform, Assess and implement practical techniques and procedure to solve biological problems and analyse and quantify data collected during any project.

**PSO5** Understand the applications of Biological techniques to various fields of biology.

**COURSE OUTCOMES OF**

**M.Sc. ZOOLOGY**

**M.Sc. ZOOLOGY SEMESTER I**

**CO OF COURSE I**

**BIOSYSTEMATICS,TAXONOMY AND EVOLUTION**

**Students would be able to--**

**CO I** Classify animals on the basis of their relation to other animals by body structure,external characters, development and DNA

.

**CO2** Apply the International rules of Nomenclature to give a scientific name to animals which are found during research..

**CO3** Understand the gradual development and evolutionary history of different kinds of living organisms from earlier forms over several generations

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**CO4** Understand and demonstrate the internal anatomy of various animals,biodiversity and related indices .

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**CO OF COURSE II**

**STRUCTURE AND FUNCTIONS OF INVERTEBRATES**

 **Students would be able to --**

**CO1**  Understand the structure and organisation of invertebrate animals.

**CO2**  ExplaIn modifications in various functions of animals during transition from invertebrates to vertebrates.

**CO3** Discuss the evolutionary significance of larval forms of invertebrates.

**CO4** Identify invertebrates and homology,analogy and modifications of mouthparts in relation to feeding habits.

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**CO OF COURSE III**

**QUANTITATIVE BIOLOGY, BIODIVERSITY AND WILDLIFE**

**Students would be able---**

**CO1** To understand quantitative approaches and technologies involved in research.

**CO2** To identify diversity of fauna on earth and implement conservation measures to save diversity

**CO3** To understand importance of wildlife and conservation measures,National parks and Sanctuaries.

**CO4** Analyse biological data mathematically and statistically.

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**CO OF COURSE IV**

**BIOMOLECULES AND STRUCTURAL BIOLOGY**

**Students would be able -**

**CO1** To explain Biomaterial, Nanoparticles and their importance.

**CO2** To understand biological reactions,structure of protein,carbohydrates fats,nucleic acids and their metabolism.

**CO3** To develop a knowledge of enzymes and mechanism of their action in various biological reactions.

**CO4** To understand the process of gene expression & protein synthesis.

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**M.Sc. ZOOLOGY**

**SEMESTER II**

**CO OF COURSE V**

**GENERAL AND COMPARATIVE ANIMAL PHYSIOLOGY & ENDOCRINOLOGY OF VERTEBRATES.**

**Students would be able to -**

**CO1**  Understand all physiological processes of vertebrates & analyse them biochemically.

**CO2** Correlate the comparative physiology of the systems and understand their regulation & control.

**CO3** Compare the structure, functions and regulation of the receptor organs of vertebrates

**CO4** Understand the structure, function and regulation of endocrine & neuroendocrine glands,

**CO OF COURSE VI**

**POPULATION ECOLOGY AND ENVIRONMENTAL PHYSIOLOGY**

**Students would be able to --**

**CO1** Understand population and its characters and regulation.

**CO2** Correlate physiological adaptations to environment and pollution, control measures for environmental degradation.as well as risk factors to human health.

**CO3**  Understand limiting factors, predator-prey relationships and physiological responses of the body to environment.

**CO4** Demonstrate the methods of relaxation of Stress and body by Yoga, Meditation, Asana & Pranayam.

**CO OF COURSE VII**

**TOOLS AND TECHNIQUES IN BIOLOGY**

**Students would be able to---**

**CO1**  Explain Microscopy,Colorimetry,Chromatography principle,process, applications and working of related instruments.

**CO2** Demonstrate Microbiological, Cytological,Histological,Molecular biological techniques.

**CO3** Apply and demonstrate Immunological Surgical Immunodetection and Cell culture techniques.

**CO4** Understand Cryopreservation, Radioisotope and Isotope techniques and applications of all the techniques in biology.

**CO OF COURSE VIII**

**MOLECULAR CELL BIOLOGY AND GENETICS**

**Students would be able to --**

**CO1** Explain Biomembranes and the processes of Cell-cell signalling and cell-cell adhesion.

**CO2**  Understand the process of Sex determination and details of Human chromosomes & Human chromosome project.

**CO3** Understand gene libraries, Transgenic and Knockout animals.

**CO4**  Understand various genetic processes and their applications to biological systems.

**M.SC. ZOOLOGY**

**SEMESTER III**

**CO OF COURSE IX COMPARATIVE ANATOMY OF VERTEBRATES**

**Students would have --**

**CO1** Knowledge of Origin, Evolution and general organisation of Chordates.

**CO2** Knowledge of Evolution of heart , lungs and urino-genital organs of vertebrates

**CO3**  Knowledge of comparative anatomy of all systems of vertebrates.

**CO4**  Knowledge of flight and aquatic adaptations in birds and mammals.

**CO OF COURSE X**

**LIMNOLOGY**

**Students would have--**

**CO1**  Knowledge of morphometry,physico-chemical and biological characteristics of fresh water bodies.

**CO2**  An understanding of the significance of aquatic flora,fauna,insects,birds and macrophytes in water bodies.

**CO3**  Knowledge of pollution of rivers, causes and control measures.

**CO4** Knowledge of legislation and regulation on discharge of industrial effluents and domestic wastes in rivers and reservoirs.

**CO OF COURSE XI**

**ECOTOXICOLOGY**

**Students would be able --**

**CO1** To develop an understanding of environmental biology,productivity and pollution.

**CO2**  To develop knowledge of Toxicity of foods,pesticides and agrochemicals among youngers.

**CO3**  To know public health hazards due to natural disasters and occupation..

**CO4**  To know the process of recycling and reuse technologies of solid and liquid waste.

 **CO OF COURSE XII**

**AQUACULTURE**

**Students would be able to-**--

**CO1** Develop a knowledge of farming of aquatic organisms for increasing food production and animals beneficial to human.

**CO2** Observe culture techniques, farm management and hatchery operations.

**CO3**  Analyse harvesting and marketing strategies.

**CO4** Understand the technique of fish preservation and Water quality monitoring techniques.

**M.SC. ZOOLOGY**

**SEMESTER 1V**

**CO OF COURSE XIII**

**ANIMAL BEHAVIOUR NEUROPHYSIOLOGY**

**Students would be able to ---**

**CO1** Understand neurophysiology of perception memory, domestic animal and human behaviour.

**CO2** Analyse processes at different levels and neurophysiology of sensory processing of animal behaviour.

**CO3**  Classify behavioural patterns, communication, learning and memory.

**CO4**  Understand social, territorial aggressive behaviour of lower and higher animals.

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**CO OF COURSE XIV**

**GAMETE BIOLOGY, DEVELOPMENT & DIFFERENTIATION**

**Students would be able to -**

**CO1** Understand reproductive physiology and development in mammals

**CO2** Develop a deep knowledge of the role of endocrine secretion in regulation of reproductive cycle

**CO3** Understand the process of differentiation of eggs and sperms before fertilization.

**CO4** Develop a knowledge of cryopreservation technique and stem cell disorders.

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**CO OF COURSE XV**

**ICHTHYOLOGY (FISHSTRUCTURE AND FUNCTION)**

**Students would be able to---**

**CO1**  Know the functional anatomy of all organ systems of fish

**CO2**  Understand migration and adaptations in fishes.

**CO3**  Observe the phenomenon of Parental care in various fishes and importance of electric organs in fishes.

**CO4**  Understand the significance of Colouration, luminous and poisonous organs of fish.

**CO OF COURSE XVI**

**PISCICULTURE AND ECONOMIC IMPORTANCE OF FISHES**

**Students would be able to---**

**CO1**  Differentiate between natural and induced breeding in fish.

**CO2**  Manage hatcheries and fish farm in future.

**CO3** Develop technical knowledge of fish preservation and Shark liver oil industry.

**CO4**  Identify fish by morphometric and meristic characters and apply the method in biodiversity oriented research.

**CO5**  Explain and apply genetic engineering in fishery technology.

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