PROGRAM OUTCOMES (M.Sc. ZOOLOGY)

PO1- Develop deeper understanding of key concepts of zoology at molecular, cellular level, physiology and reproduction at organism level.

PO2- Describe the role of taxonomy and systematics in animal studies and gain in-depth knowledge of animals including invertebrates and vertebrates..

PO3- Place zoological knowledge in context and show an understanding of the way zoologists think and understand the needs of zoology in shaping our planet.

PO4- Comprehend, interpret, general evolutionary relationships among and between different animal groups.

PO5- Correlate between the various animal habitats, their behavior and during the course of evolution

PO6- Learn the skills of handling various scientific equipment, designing and performing the laboratory experiments.

PO7- Explore various applied fields with the knowledge of sericulture, apiculture, fisheries, poultry, vermiculture, dairy farms etc.,

PO8- Communicate the importance of ecological factors, biodiversity, environmental conservation processes, pollution control and protection of threatened species to the society

PO9- Enhance their scientific temper and scientific thinking and exhibit creativity in designing, planning, problem solving, model making for various scientific concepts

Program Specific Outcomes: PSO of M. Sc., Zoology

PSO 1- Used the evidences of comparative biology to explain how the theory of evolution offers the only scientific explanation for the unity and diversity of life on earth. They are ableto use specific examples to explicate how descent with modification has shaped animal morphology, physiology, life history, and behavior.

PSO 2- Explicated the ecological interconnectedness of life on earth by tracing energy and nutrient flows through the environment. They are able to relate the physical features ofthe environment to the structure of populations, communities, and ecosystems.

PSO 3- Subjects such as invasive or endangered species, embryonic development in mammals andageing in social insects. Lead to advances in medicine to prevent disease amongst both animals and human beings.

PSO 4- Developed knowledge and understood of living organisms at several levels of Zoological and Biological organization from the molecular, through to cells and whole organisms andecosystems all organs of evolutionary perspectives.

PSO 5- Understood how the chemistry and structure of the major biological macromolecules, including proteins and nucleic acids, determines their biological properties.

M.Sc., ZOOLOGY – COURSE OUTCOMES

COURSE OUTCOMES - ANIMAL DIVERSITY

CO 1- Understood the Classification and Phylogeny of Animals

CO 2- Described General characteristics, classification of invertebrates and vertebrates.

CO 3- Described General characteristics, classification and systematic portion of Minor phyla

CO 4- Described the general biology of few selected non-chordates and chordates which areuseful to mankind?

CO 5- Enriched knowledge on ecology of some important fishes, amphibians, reptiles, birds andmammals

COURSE OUTCOMES – BIOCHEMISTRY

CO 1- Identified the five classes of polymeric biomolecules and their monomeric building blocks.

CO 2- Explained the specificity of enzymes (biochemical catalysts), and the chemistry involvedin enzyme action.

CO 3- Understood types, Structure, biochemical properties and functions of vitamins.

Explained how the metabolism of organic compounds leads ultimately to the generationof

CO 4- large quantities of ATP.

Described the structure and classification of hormones.

COURSE OUTCOMES – CELL AND MOLECULAR BIOLOGY

CO 1- Described the ultra-structure and functions of cell organelles.

CO 2- Understood DNA replication, RNA and protein synthesis and came to know protein synthesis

CO 3- can be controlled at the level of transcription and translation.

CO 4- Understood cell signaling and cellular communication.

CO 5- Described the oncogenes

CO 6- Understood the types and applications of stem cells.

COURSE OUTCOMES – BIOSTATISTICS

CO 1- Came to know the data collection, tabulation and presentation.

CO 2- Described the mean, median, mode and SD.

CO 3- Understood the Analysis of Variance.

CO 4- Described Student 't' test and probability

CO 5- Understood the Correlation and Regression.

COURSE OUTCOMES: LAB – ANIMAL DIVERSITY, BIOCHEMISTRY AND CELL AND MOLECULAR BIOLOGY

CO 1- Performed and understood the anatomy and physiology of animals by dissection.

CO 2- Performed by experiments to analyze the macromolecules in animals

CO 3- Understood the principles and types of PCR demonstration.

CO 4- Described the fine structure and functions of cell organelles.

CO 5- Performed a variety of molecular and cellular biology techniques.

COURSE OUTCOMES – ANIMAL PHYSIOLOGY

CO 1- An integrated Understanding of physiological mechanisms

CO 2- Described the physiology of digestive and respiratory system of human beings.

CO 3- Understood the blood composition, types, groups and circulatory system.

CO 4- Described the physiology of excretory system and nervous system of human beings.

CO 5- Came to know the physiology of sense organs, muscles and reproductive system.

COURSE OUTCOMES – GENETICS

CO 1- Described the fundamental molecular principles of genetics

CO 2- Understood the structure and function of DNA & RNA

CO 3- Understood about the transmission, distribution, arrangement, and alteration of geneticinformation and how it functions and is maintained in populations

CO 4- Described the basics of genetic mapping.

COURSE OUTCOMES – IMMUNOLOGY AND MICROBIOLOGY

CO 1- Outline the key components of the innate and adaptive immune responses.

CO 2- Described about cell types and organs which are involved in an immune response

CO 3- Described the Infectious diseases, hypersensitivity, autoimmune disorders,immunodeficiency diseases

CO 4- Understood the microbial diversity, ultra structure, culture techniques of microbes.

CO 5- Came to Came to knowing about the various pathogenic fungi and viruses and

beneficialmicrobes.

COURSE OUTCOMES – LAB – ANIMAL PHYSIOLOGY, GENETICS, IMMUNOLOGY AND MICROBIOLOGY

CO 1- Biological chemistry and its importance in physiology by testing

CO 2- Performed an experiment to culture Drosophila, Identifications of sex & mutants.

CO 3- Observed ABO blood grouping and studied the lymphoid organs

CO 4- Performed an experiments about the immunodiffusion Immunoelectrophoresis and Immunoelectrophoresis

CO 5- Learnt about the microbial culture methods.

COURSE OUTCOMES – DEVELOPMENTAL BIOLOGY

CO 1- Understood and mastered on the basic concepts of developmental biology.

CO 2- Understood how fertilization, cleavage and gastrulating occur.

CO 3- Understood the basic concepts of organogenesis.

CO 4- Understood about the basic concepts of growth, regeneration and ageing

CO 5- Described the test tube baby and placentation in mammals.

COURSE OUTCOMES – ECOLOGY

CO 1- Demonstrated an Understood of ecological relationships between organisms and their environment.

CO 2- Presented an overview of diversity of life forms in an ecosystem.

CO 3- Explained and identified the role of the organism in energy transfers

CO 4- Described the Habitat ecology and Resource ecology

CO 5- Understood the Environmental Pollution and their management

COURSE OUTCOMES – EVOLUTION

CO 1- By biological evolution we could understand that many of the organisms that inhabit theEarth today are different from those that inhabited it in the past

CO 2- Understood that the four propositions underlying Darwin's theory of evolution throughnatural selection are:

(1) more individuals are produced than can survive;

(2) There is therefore, a struggle for existence

(3) Individuals within a species show variation

(4) Offspring tend to inherit their parental characters

CO 3- Explained adaptation, providing examples from several different fields of biology

CO 4- Explained how the molecular record provides evidence for evolution

CO 5- Understood the Human origin and evolution.

COURSE OUTCOMES – LAB – DEVELOPMENTAL BIOLOGY, ECOLOGY AND EVOLUTION

CO 1- Performed to know the various embryonic stages of animals.

CO 2- Learnt that the mounting of chick blastoderm and observation of sperm motility

CO 3- Confirmed the role of iodine and thyroxin in Amphibian metamorphosis.

CO 4- Analysed various physicochemical parameters in environmental matrices.

CO 5- Came to Came to knowing the Animals of evolutionary importance, fossils, analogousand homologous organs, Mimicry and Colouration.

COURSE OUTCOMES – ANIMAL CELL CULTURE TECHNOLOGY

CO 1- Described the structure and Organization of animal cell.

CO 2- Understood the preparation of the culture medium.

CO 3- To know the basic techniques of mammalian cell culture *in vitro.*

CO 4- Understood about Cell cloning and micromanipulation

CO 5- Applications of cultured animal cells are known.

COURSE OUTCOMES – ANIMAL BIOTECHNOLOGY

CO 1- Understood animal cell structure, scope of biotechnology.

CO 2- Described the Gene cloning and gene transfer methods.

CO 3- Came to know the concept of PCR**,** Screening of recombinant clones – nucleic acidhybridization, DNA sequencing, DNA fingerprinting.

CO 4- Described the Animal tissue culture techniques.

CO 5- Understood Embryo transfer & transgenic animal technology.