PROGRAM OUTCOME
B.Sc. ZOOLOGY

After successful completion of three year degree program in Zoology, a student should be able to:

PO – 1. Apply the knowledge of various branches of Zoology and General Biology meant for higher studies.

PO – 2. Understand the unity of life with the rich diversity of organisms and their ecological and evolutionary significance.

PO – 3. Acquire basic skills in the observation and study of nature, biological techniques, experimental skills and scientific investigation.

PO - 4. Zoology graduates may go for self employment in the fields of Aquaculture, Apiculture, Sericulture and all sorts of animal farm management.

COURSE OUTCOMES
BSc Zoology

SEMESTER – I

Subject Code: **ZOO-101**
Subject Name: **Principles of classification, Zoogeography and Palaeontology**

After completion of this course students should be able to:

1. Understand classification of animals – species concept, Taxonomy and Systematic, Taxonomic hierarchy.
2. Learn about International code of Zoological Nomenclature, Concepts of Chemotaxonomy and Numerical taxonomy.
3. Know the Approaches in taxonomy – morph metric and cytological techniques and basic concept of molecular techniques in taxonomy.
4. Understand Zoogeographical regions of the world with characteristic fauna, Marine realm, Barriers, Discontinuous distribution, etc.
5. Explain fossils and fossilization, dating of fossils and Geological time scale with associated fauna.

SEMESTER – II

Subject Code: **ZOO-202**
Subject Name: **Functional Anatomy of Non-Chordata**

After completion of this course students should be able to:

1. Learn the distinguishing characters and classification of all non chordate phyla including Minor phyla.
2. Describe the structure, nutrition, reproduction and life history of different groups of Non-Chordata.

SEMESTER – III

Subject Code: **ZOO-303**
Subject Name: **Functional Anatomy of Chordata**

After completion of this course students should be able to:

1. Understand General characters and classification of Chordata and Structural organisation of Protochordata.
2. Describe the organ systems of Petromyzon, Scoliodon and Lung fishes.
3. Learn general characters, classification and organisations of Amphibia, Reptilia, Aves and Mammalia.
4. Compare different organ systems of Chordate animals.

SEMESTER – IV

Subject Code: **ZOO-404**
Subject Name: **Biodiversity, Environmental Biology, Applied Zoology and Computer Application**

After completion of this course students should be able to:

1. Know about Biodiversity concept, biodiversity hotspots, IUCN Red list Category, Wildlife of India, Wildlife census, Wildlife conservation, Ramsar sites etc.
2. Learn the concept of Ecosystem, Major ecosystems, ecological succession, and Biological cycle.
3. Understand different aspects of population study and environmental pollution.
4. Learn about Apiculture, Sericulture and Fisheries.
5. Understand Basic concepts of computer, computer application in Biological Sciences, Bioinformatics, E-learning, networking, etc.

SEMESTER – V

Subject Code: **ZOO-505**
Subject Name: **Cell Biology and Genetics.**

After completion of the course students should be able to:

1. Understand cellular organisation, Cytoplasmic organelles, Nuclear organisation and Cell Regulatory Mechanism.
2. Understand Prokaryotic and eukaryotic cells, Intercellular adhesion and interaction, Extra-nuclear organisation of cells, Concept of unit membrane, active and passive transport.
3. Understand the whole cytoplasmic organelles and Nuclear Organisation.
4. Understand the cell cycle and know the difference between Mitotic and Meiotic cell division and regulation of cell division.
5. Understand DNA replication, Molecular expression of gene action, protein synthesis and its regulation, Lac Operon and Tryptophan Operon model.
6. Understand the history of Genetics, Mendelism, linkage maps, etc.
7. Learn about Gene interactions, Sex determination in Drosophila and Man, Genetics of blood group and Modern concept of gene.
8. Know Point mutation, Chromosomal aberrations, polyploidy, human genetics, normal and abnormal karyotypes and genetic counselling.
9. Understand Molecular Genetics and Tools, Polymerase Chain Reaction (PCR) and human genome project.

SEMESTER – V

Subject Code: **ZOO-506**
Subject Name: **Evolution, Adaptation, Ethology, Biotechnology and Bioinstrumentation.**

After completion of the course students should be able to:

1. Understand Origin of life, Evidences of evolution, Hardy-Weinberg law, Sewell-Wright effect.
2. Understand mutation in evolution, Variation, Natural selection, Isolating mechanism, Speciation and Evolution of man.
3. Understand Structural adaptation of animals, adaptation of animals to deep sea, desert and cave.
4. Know mimicry in animals, adaptive radiation and convergence.
5. Describe types of animal behaviour, learning in animals, Types of communications in insects, Pheromones, Parental care in fishes, courtship behaviour in fishes and birds, Biological Rhythm and Migration in insects, fishes and birds.
6. Understand history, scope, importance and types of biotechnology, Importance of viruses, bacteria, algae and fungi in biotechnology, Alcohol fermentation and bio insecticide and techniques of animal cell culture.
7. Understand health care biotechnology, genetic engineering, Transgenic animals and in-vitro fertilization in human etc.
8. Understand General principles and brief ideas on the types of Microscopy, Spectrophotometry, Electrophoresis, Chromatography and Centrifugation.

SEMESTER – VI

Subject Code: **ZOO-608**
Subject Name: **Animal Physiology, Endocrinology and Immunology.**

After completion of the course students should be able to:

1. Understand nutritional requirements, digestion and absorption.
2. Understand conduction and regulation of heart beat, cardiac cycle, ECG, composition and functions of blood, blood groups, Rh factor, haemoglobin and haemopoiesis, blood pressure and blood coagulation.
3. Understand Mechanism and control of breathing, transport of oxygen and carbon dioxide, oxygen dissociatin curve, Bohr effect, Haldane effect and chloride shift.
4. Understand Physiology of urine formation, role of kidney in water regulation, salt and acid base balance.
5. Know the structural, chemical and physiological basis of skeletal muscles, muscle contraction and its mechanism.
6. Understand Nerve impulse and its propagation, functions of central nervous system, functions of sense organs and EEG.
7. Understand definition of endocrine glands, function of hormones secreted by endocrine lands.
8. Introduce Immunology, structure and types of **Ig**, antigen-antibody reactions, mechanism of immune response and brief ideas of HIV AIDS.

SEMESTER – VI

Subject Code: **ZOO-609**
Subject Name: **Developmental Biology, Histology and Biological Chemistry.**

After completion of the course students should be able to:

1. Understand Gametogenesis, Fertilization and Parthenogenesis.
2. Understand animal egg, early stages of development and foetal membranes.
3. Learn organogenesis, tissue interactions and metamorphosis.
4. Experience the basic principles of histological techniques, microscopic anatomy of mammalian organs.
5. Understand Chemistry of carbohydrates, proteins, lipids, nucleic acids and enzymes.
6. Know the intermediary metabolism of carbohydrates, proteins and lipids.
7. Understand metabolism of amino acids, interrelationship of metabolic pathways.
8. Understand basic concepts of bioenergetics.