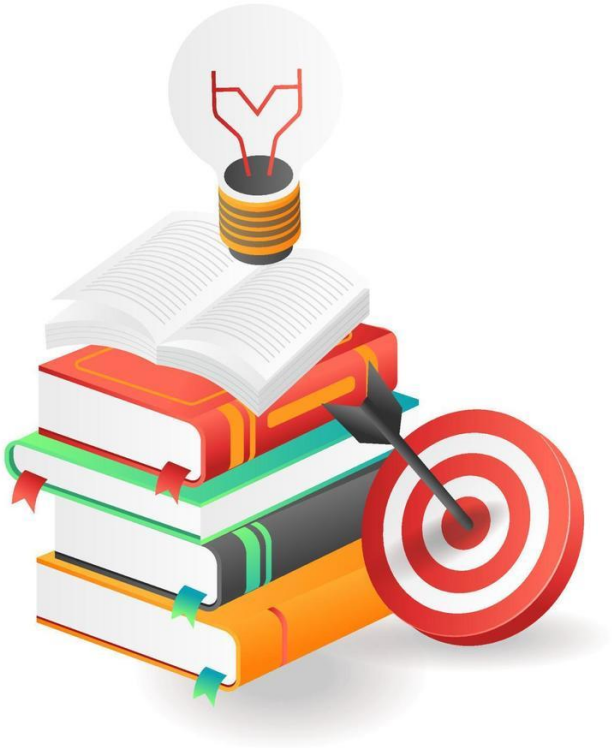
Program Outcomes (POs)
&
Course Outcomes (COs)



Program Outcome (POs):

- ✓ PO1: Apply the knowledge of various branches of Zoology and General biology meant both for a graduate terminal course and for higher studies.
- ✓ PO2: To impart quality life science education to women students and to develop young women as outstanding scholars/ teachers/ career women/ entrepreneurs and responsible citizens.
- ✓ PO3: Develop positive attitude towards sustainable development.
- ✓ PO4: Understand the unity of life with the rich diversity of organisms and their ecological and Evolutionary significance.
- ✓ PO5: Acquire basic skills in the observation and study of nature, biological techniques, experimental skills and scientific investigation.
- ✓ PO6: Acquisition of knowledge of applied zoology that can be utilized for developing own business i.e. entrepreneurship skill.

Program Specific Outcomes (PSOs):

- ✓ PSO1: Gain the knowledge of Zoology through theory and practical. Identify and list out common animals and analyse the relationships among animals with their ecosystems.
- ✓ PSO2: Learn to classify the major groups of organisms under different phyla, understanding the functioning of organisms, compare and contrast anatomical and physiological characteristics of animals.
- ✓ PSO3: Explain various physical and physiological processes in our bodies.
- ✓ PSO4: Analyse the impact of environment on our bodies
- ✓ PSO5: Understand various genetic abnormalities
- ✓ PSO6: Understand good laboratory practices as per laboratory standards, handling the sophisticated instruments/equipment to develop technical skills, research oriented skills about research methodologies, effective communication and skills of problem solving methods.
- ✓ PSO7: Explain the role and impact of different environment conservation programs
- ✓ PSO8: Identify animals beneficial to humans.
- ✓ PSO9: Identify various potential risk factors to health of humans.
- ✓ PSO10: Explain the importance of genetic engineering.
- ✓ PSO11: Use tools of information technology for all activities related to zoology.
- ✓ PSO12: Understand the applications of zoological knowledge in Agriculture, Medical and daily life
- ✓ PSO13: Knowledge on Economic Zoology for employment- Indian Forest Service, Sericulture, Fisheries, Veterinary, Clinical Laboratory, Museum Curator, departments and Entrepreneurship.
- ✓ PSO14: They can go for Indian Forest Service and other competitive examinations.

Course Outcomes (COs):

Core Papers	
Course code	Course Outcome
ZOOA-CC1-1-TH [Non- Chordates I Protista to Pseudo-coelomate] Theory	✓ Describe the distinguishing characteristics of the major taxa. ✓ Explain the basic aspects of classification details of invertebrates ✓ Understand biodiversity, habitat, adaptation organization and taxonomic status of invertebrates. ✓ Interpret the affinities, evolutionary relationships and adaptation of the major parasitic helminths and to explain their medical importance in terms of disease.
ZOOA-CC1-1-P [Non- Chordates I] Lab	✓ To understand the systematics, morphology, functional, and structural modification in various groups of invertebrates & chordates.
ZOOA-CC1-2-TH [Molecular Biology] Theory	✓ Rigorous foundation in the principles of molecular and cellular biology give insights into the mechanisms involved in the synthesis and function of macromolecules such as DNA, RNA, and proteins. ✓ Studying molecular cell biology trains the students to think logically, critically and quantitatively.
ZOOA-CC1-2-P [Molecular Biology] Lab	✓ Understand the role of genetics as the underlying cause of various disorders of the human body.

	✓ Knowledge of research principles and methods applicable in the discipline of genetic counselling and genetic testing approach taken for specific genetic disorders. ✓ Principles of the legal and professional duties and the responsibilities of genetic counsellors as health professionals. ✓ Role of the genetic counsellor in the context of the multidisciplinary approach to clinical genetic health care. ✓ Integrate knowledge of genetics and genomics, including dysmorphology, inherited and multifactorial disorders, cancer genetics, genetic and genomic testing, and screening including prenatal diagnosis for the purposes of genetic and genomic counselling.
ZOOA-CC2-3-TH [Non-Chordate II: Coelomate Phyla] Theory	✓ To compare and understand the general and specific characteristics within each Phyla. ✓ Develop some of the general principles of zoology as they are encountered in the survey of the animal kingdom. ✓ Develop a general familiarity with all major groups of animals, including specific information about selected representatives of each group. ✓ Learning Zoology will lead to discuss the diversity of invertebrate animal life and the fascinating adaptations that enable animals to inhabit nearly all conceivable ecological niches.
ZOOA-CC2-3-P [Non-Chordate II: Coelomate Phyla] Lab	✓ Idea about internal features of invertebrates and to compare and contrast. ✓ Understanding the internal anatomy and disposition of organs.
ZOOA-CC2-4-TH [Cell Biology] Theory	✓ To impart knowledge about the prokaryotic and eukaryotic cell, its complex organization, biosynthesis of cellular membranes and organelles and the unified role it plays for the ultimate sustainability of the organisms.
ZOOA-CC2-4-P [Cell Biology] Lab	✓ Apply a basic core of scientific and quantitative knowledge to enhance understanding of cell structure and function at the molecular level. ✓ Develop and maintain a notebook of laboratory records. ✓ Utilize laboratory skills of nucleic acid isolation. ✓ Practical understanding of cell division and corresponding chromosomal morphology.
ZOOA-CC3-5-TH [Chordata] Theory	✓ Identify the general and specific characteristics of the different classes and the organization of the representative types. ✓ Recognize and describe the major groups of chordates ✓ Understand the diversity of Chordates and its outline systematic. ✓ Discuss their affinities and adaptations to different modes of life. ✓ Understand the unique features, taxonomy and functional morphology of different classes of chordates. ✓ To infer the affinities, evolutionary relationships and adaptation of the major taxa and to explain their economic importance with respect to Chordates.
ZOOA-CC3-5-P [Chordata] Lab	✓ Understanding the general characters of many chordates. ✓ Understanding the level of internal organization of fish. ✓ Understanding structure of scales of fish. ✓ Seminar presentation and project submission process on animal behaviour
ZOOA-CC3-6-TH [Animal Physiology: Controlling & Coordinating System] Theory	✓ To understand the structure and physiology of the types included with special emphasis on the adaptations to their modes of life and environment. ✓ Understanding the process of human neural transmission, muscle structure and function. ✓ Gaining of fundamental rather elaborate knowledge of mammalian endocrine system and various physiological processes of human body.
ZOOA-CC3-6-P [Animal Physiology: Controlling & Coordinating System] Lab	✓ Understanding the histological structure of mammalian glands under microscope and sample preparation for microscopic studies. ✓ Learning of practical technique to investigate the effect of any physical or chemical entities on muscle contraction.

ZOOA-CC3-7-TH [Fundamental of Biochemistry] Theory	✓ Detail understanding about the biochemical organization of biomolecules like carbohydrate, protein, fat. ✓ Detail knowledge of metabolic activities in the body.
ZOOA-CC3-7-P [Fundamental of Biochemistry] Lab	✓ Qualitative and quantitative assay of macromolecules, specially protein very much helpful for future wet lab work.
ZOOA-CC4-8-TH [Comparative Anatomy of Vertebrate] Theory	✓ Students will be able to use the evidence 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 will be able to use specific examples to explicate how descent with modification has shaped animal morphology**,** physiology, life history, and behaviour**.** ✓ Learn that the cells are the basic units of life, which contribute to form tissue, organs, and organ systems and their functions, diversity and evolutionary relationships among animals.
ZOOA-CC4-8-P [Comparative Anatomy of Vertebrate] Lab	✓ To understand the systematics, morphology, functional, and structural modification in various groups of invertebrates & chordates
ZOOA-CC4-9-TH [Animal Physiology: Life Sustaining System] Theory	✓ To understand the basic organization of organisms and subsequent development to an organ system. ✓ To analyse the physiological processes that regulates body functions and the regulation of an organ system from the molecular all the way to the whole animal level. ✓ Recognize the complimentary relationship of structure and function and describe the interactions between different organ systems to maintain homeostasis. ✓ Ability to explain the role of the endocrine glands in maintaining homeostatic mechanisms utilized by each body system in response to internal and external environmental changes. ✓ To apply knowledge of a physiological mechanism for further understanding of the cellular and molecular mechanisms of action in health and disease.
ZOOA-CC4-9-P [Animal Physiology: Life Sustaining System] Lab	✓ Knowledge of pathological or clinical investigation of many human blood parameters. ✓ Details morphological investigations of blood cells under microscope.
ZOOA-CC4-10-TH [Immunology] Theory	✓ The mechanisms and differences between primary and secondary responses and their relevance to immunizations. ✓ Identify the role of antigen presenting cells, lymphocytes, and phagocytic cells in immune responses. ✓ Role of immunology in protection against disease and autoimmune disorders. ✓ Advanced knowledge about hypersensitivity and vaccine.
ZOOA-CC5-11-TH [Ecology] Theory	✓ Describe the distinguishing characteristics of the major taxa. ✓ Explain the basic aspects of classification details of ecology. ✓ Understand biodiversity, habitat, adaptation organization and flora & fauna of soil & water, effect of light and temperature on living things. ✓ Understand the systemic and functional morphology of various concepts of ecology and embryology Explain the basic aspects of structural and functional details of environments. ✓ To compare and understand the general and specific characteristics within and other environments in relation to abiotic & biotic factors.
ZOOA-CC5-11-P [Ecology] Lab	✓ Experiential learning of chemical analysis of water. ✓ Understanding faunal diversity and density analysis both in micro as well as macro level.
ZOOA-CC5-12-TH [Principle of Genetics] Theory	✓ Understand the core principles of genetics, the historical background, genetic crosses, basic laws governing the pattern of qualitative characters, linkage and crossing over.

	✓ Understanding the applications of genetics for the welfare of health and treatment of disease, and the impact of selective advantage and natural selection on human genetic disorders.
ZOOA-CC5-12-P [Principle of Genetics] Lab	✓ Fundamental statistical concepts and some of their basic applications in science and society ✓ Develop a thorough grounding in fundamental analytical approaches for quantitative study of living systems and life processes. Shall know how to organize, manage, and present data. ✓ Describe the contents and properties of the most important bioinformatics databases, perform text- and sequence-based searches.
ZOOA-CC6-13-TH [Developmental Biology] Theory	✓ Complete understanding of human pre and post-natal development process at molecular level. ✓ Vivid knowledge of the process of fertilization.
ZOOA-CC6-13-P [Developmental Biology] Lab	✓ Understanding placental structures. ✓ Knowledge of structure of normal and abnormal embryo under microscope.
ZOOA-CC6-14-TH [Evolutionary Biology] Theory	✓ To understand the evolutionary events those has occurred throughout Earth's geological history starting with the hypotheses on the origin of life and identify the key events in human evolution. ✓ Know how to obtain current information about scientific and clinical applications of genetics, particularly from specialized genetics services. ✓ Analyse the processes in population genetics and describe how they affect the genetic diversity within a species Compare and contrast the various theories on formation of new species and identify the factors that play a role in the process of evolution and understand the genetic basis of evolutionary change.
ZOOA-CC6-14-P [Evolutionary Biology] Practical	✓ Knowledge of fossil studies. ✓ Idea of construction of dendogram and cladogram very much useful in molecular taxonomical research.
Discipline Specific Electives	
ZOOA-DSE(A)-5-1-TH [Parasitology] Theory	✓ To provide students with knowledge concerning biological, epidemiological and ecological aspects of parasites causing diseases to humans. ✓ To enable students to understand the pathogenesis, clinical presentations and complications of parasitic diseases. ✓ To enable students to reach diagnosis and know the general outline of treatment, prevention and control of parasitic infections ✓ To provide students with adequate knowledge about endemic parasites and national parasitic problems as well as re-emerging parasitic infection. ✓ Understanding of parasitism, including the diversity of symbiotic associations and their population dynamic and contextual nature. ✓ Familiarity with common protozoan and helminth parasites of humans as well as some related parasites of livestock and companion animals. ✓ Understanding of the roles of parasites and of infectious diseases on the ecology and evolution of their hosts, and of the role of symbiosis in the evolution of life on earth.
ZOOA-DSE(A)-5-1-P [Parasitology] Lab	✓ Understand fundamental analytical principles and processes used in clinical laboratory testing for faecal matter. ✓ Understand the concepts and safety measures of clinical laboratory instruments. ✓ Acquired technical skills will help the students for collecting and processing biological specimens for analysis. ✓ Application of medical laboratory procedures will enable the students to distinguish normal and abnormal microscopic pathogens. ✓ Students enable their critical and analytical thinking in the detection of diseases.