B. Sc. Zoology

Programme Outcomes:

Knowledge outcomes:

After completing B.Sc. Zoology Programme students will be able to:

PO1: Demonstrate and apply the fundamental knowledge of the basic principles of major fields of Zoology;
PO2: Apply knowledge to solve the issues related to animal sciences
PO3: Take appropriate steps towards conservation of endemic and endangered animal species

Skill outcomes:

After completing B.Sc. Zoology Programme students will be able to:

PO4: To foster curiosity in the students for Zoology
PO5: To create awareness amongst students for the basic and applied areas of Zoology
PO6: To orient students about the importance of abiotic and biotic factors of environment and their conservation
PO7: To provide an insight to the aspects of animal diversity.
PO8: To inculcate good laboratory practices in students and to train them about proper handling of lab instruments.

Generic outcomes:

Students will

PO10: Demonstrate knowledge and understanding of Zoology and management principles and apply these to one's own work, as a member and leader in a team.
PO11: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change
PO12: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

Programme Specific Outcomes

PSO1 - Understand the nature and basic concepts of cell biology, genetics, taxonomy, physiology, ecology and applied Zoology
PSO2 - Analyse the relationships among animals with their ecosystems
PSO3 - Perform procedures as per laboratory standards in the areas of Taxonomy, Physiology, Ecology, Cell biology, Genetics, Applied Zoology, Clinical science, tools and techniques of Zoology, Toxicology, Sericulture, Biochemistry, Fish biology, Animal

biotechnology, Immunology and research methodology
PSO4 - Understand the applications of Zoology in Agriculture, Medicine and daily life PSO5 - Gains knowledge about research methodologies, effective communication and skills of problem solving methods
PSO6 - Contributes the knowledge for Nation building.

Course Outcomes

F. Y. B.Sc. Zoology (2019 pattern)

Learning outcomes :

1. The student will be able to understand, classify and identify the diversity of animals.
2. The student will understand the importance of classification of animals and classify them effectively using the six levels of classification.
3. The student knows his role in nature as a protector, preserver and promoter of life which he has achieved by learning, observing and understanding life.

ZO-111,121: Animal diversity I and II

After successfully completing this course, students will be able to:

CO1: To understand the Animal diversity around us.
CO2: To understand the underlying principles of classification of animals.
CO3: To understand the terminology needed in classification.
CO4: To understand the differences and similarities in the various aspects of classification.
CO5: To classify invertebrates and to be able to understand the possible group of the invertebrate observed in nature.

ZO- 112: Animal Ecology

After successfully completing this course, students will be able to:

CO1: The learners will be able to identify and critically evaluate their own beliefs, values and actions in relation to professional and societal standards of ethics and its impact on ecosystem and biosphere due to the dynamics in population.

CO2: To understand anticipate, analyse and evaluate natural resource issues and act on a lifestyle that conserves nature.

CO3: The Learner understands and appreciates the diversity of ecosystems and applies beyond the syllabi to understand the local lifestyle and problems of the community.

CO4: The learner will be able to link the intricacies of food chains, food webs and link it with human life for its betterment and for non-exploitation of the biotic and abiotic components.

CO5: The working in nature to save environment will help development of leadership skills to promote betterment of environment

ZO – 122: Cell Biology

After successfully completing this course, students will be able to:

CO1: The learner will understand the importance of cell as a structural and functional unit of life.
CO2: The learner understands and compares between the prokaryotic and eukaryotic system and extrapolates the life to the aspect of development.
CO3: The dynamism of bio membranes indicates the dynamism of life. Its working mechanism and precision are responsible for our performance in life.
CO4: The cellular mechanisms and its functioning depends on endo-membranes and structures.

Course: Practical Zoology -I
After successfully completing this course, students will be able to:
CO1: Recognize the live forms of vertebrates and invertebrates.
CO2: Analyse and describe zoological concepts, including morphology and anatomy.
CO3: Explain conservation and sustainable use of animals;
CO4: Explain and demonstrate the impact that animals have on human society

Course Outcomes

S. Y. B.Sc. Zoology (2013 pattern)

ZO 211, 221: Animal Systematics and Diversity –III & IV

After successfully completing this course, students will be able to:
CO1- Knowledge of classification of Non-chordates along with studies on various physiological functions and interactions of non-chordate organisms with type specimens
CO2- Knowledge of classification of chordates along with studies on various physiological functions and comparative anatomy of organs of chordate with example.

ZO 212, 222: **Applied Zoology I & II**
After successfully completing this course, students will be able to:

CO1-Understands processes of fisheries, sericulture, along with crop pest management techniques
CO2-Students gain knowledge about various disease related vectors and their impact on human
CO3-Understands concepts of apiculture, poultry, dairy along with tissue and cell culture techniques

ZO 223: Practical course

After successfully completing this course, students will be able to:
Paper – III – Practical
CO1-First-hand knowledge about identification of non-chordate and chordate specimens (fresh and preserved) along with larval forms and study of endoskeleton of vertebrates
CO2: Understand the nature and basic concepts of cell biology, genetics, taxonomy, physiology, ecology and applied Zoology
CO3: Analyse the relationships among animals, plants and microbes

Course Outcomes

T. Y. B. Sc. Zoology

ZO 331: **Animal Systematics and Diversity V**

After successfully completing this course, students will be able to:

CO1- Knowledge of classification of protochordates and chordates along with studies on various physiological functions and interactions of chordate organisms with examples
CO2- Imparts conceptual knowledge of vertebrate adaptations in relation to their environment
CO3- Understanding of general taxonomic rules on animal classification
CO6-Knowledge of classification of Non-chordates along with studies on various physiological functions and interactions of non-chordate organisms with examples

ZO 332: Mammalian Histology

After successfully completing this course, students will be able to:
CO1: Define the basic terms in histology.
CO2: List the various types of tissues.
CO3: Identify the histological peculiarities in various organs.
CO4: Explain the location, structure and functions of various organs.

ZO 333: Biological Chemistry

After successfully completing this course, students will be able to:
CO1: Define the basic terms in biochemistry.
CO2: Explain the structure, functions and reactions of the various biomolecules.
CO3: Give examples of each group type of biomolecules.
CO4: Correlate the changes in the levels of these biomolecules with the diseases in human

ZO 334: Environmental Biology and Toxicology

After successfully completing this course, students will be able to:
CO1: An overview of evolutionary ecology and environmental concepts
CO2: Description of nature of ecosystem, production, food webs, energy flow, biogeochemical cycles, resilience of ecosystem and ecosystem management.
CO3: Understanding the biosphere, biomes and impact of climate on biomes. CO4: Description of biodiversity assessment, conservation and management, Sustainable development, natural resource management in changing environment.

ZO 335: Parasitology

After successfully completing this course, students will be able to:

CO 1: Define the basic terms in parasitology.
CO2: List common ectoparasites and endoparasites.
CO3: Explain animal associations and their types.
CO4: Discuss the life cycle and importance of major parasites.
CO5: Illustrate transmission routes of animal and zoonotic parasites
CO6: Classify parasites.
CO7: Justify the control measures of arthropod vectors.
CO8: Convince the importance of hygiene with respect to epidemic diseases.

ZO 336 Cell Biology

After successfully completing this course, students will be able to:

CO1: Define the terms in cell biology
CO2: Describe the composition, structure and functions of the plasma membrane.
CO3: Describe the three primary components of the cell's cytoskeleton and how they affect cell shape, function, and movement.
CO4: Differentiate between prokaryotes and eukaryotes.

ZO 341 Biological Techniques

After successfully completing this course, students will be able to:

CO1: Define the basic terms solution preparation.
CO2: List the separation techniques.
CO3: Explain the principle of separation techniques.
CO4: Explain the procedure of preparing permanent histological slides.
CO6: Illustrate the working of microscopes.

ZO 342 Mammalian Physiology and Endocrinology

After successfully completing this course, students will be able to:

CO1: Define the basic terms in physiology.
CO2: Explain the physiological processes in mammals.
CO3: Explain the anatomy of various systems.
CO4: Illustrate the reproductive cycles with hormonal control.
CO5:.Daigramatically represent the working of kidney.
CO6: Justify the endocrine disorders.

ZO 343 Genetics and Molecular Biology

After successfully completing this course, students will be able to:

CO1: Define the basic terms in genetics.
CO2: Discuss the linkage groups and gene frequency.
CO3: Explain the concept of mutation.
CO4: Explain DNA structure.

CO5: Paraphrase the Central dogma of molecular biology.
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ZO 345 General Embryology

After successfully completing this course, students will be able to:
CO1: Identify the developmental stages
CO2: Describe the key events in early and systematic embryological development.
CO3: Explain the theories of preformation, and concepts like growth, differentiation and reproduction.
CO4: Explain the principles and process of fertilization and cleavage.
CO5: Elucidation of early embryonic development of invertebrates and vertebrates.

ZO 346 Medical Entomology

After successfully completing this course, students will be able to:
CO1: Outline the branches of entomology.
CO2: Define medical entomology.
CO3: Explain the social organization of insects with examples.
CO4: Illustrate the role of household insects in relation to human health.
CO5: Classify major medically important insects.

ZO 347, 348,349- Practical Paper I, II, III

After successfully completing this course, students will be able to:
CO1-First-hand knowledge about identification of non-chordate and chordate specimens (fresh and preserved) along with larval forms and study of endoskeleton of vertebrates
CO2-Students are able to handle microscopes, work with camera lucida and micrometers
CO3-Identification of zooplanktons and phytoplanktons
CO4-Gain skill about histological slide preparation, staining and mounting
CO5-Students gain skill about determination of pH and quantitative analysis of blood cells
CO6-Students are able to parasites from rectal and fecal contents of animals
CO7-Students are able to collect parasite and pest specimen

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