Rajgad Dnynpeeths

Anantrao Thopte College, Bhor

Department of Zoology

Program Outcomes, Program Specific Outcomes and Course Outcomes of

B.Sc. in Zoology

B. Sc. (Zoology) Programme

B.Sc. in Zoology is an undergraduate Program in Zoology. Zoology is the branch of science which deals with the study of animal kingdom including the evolution, structure, Physiology, classification, embryology, habits, habitat and distribution of all the animals. The B.Sc. Zoology course is premeditated to introduce students to the study of zoology at the organismal and organ function levels. The theoretical part of the program deals with the general principles of classical as well as modern zoology. The program provides the student with an introduction to the recent advances in zoology in the areas of systematic, evolution, reproduction, development, animal diversity, biochemistry, cytology and animal ecology. This course is offered for candidates who are interested in the study of animals. The minimum time required to complete the course is three years.

Objectives:

Imparting quality education in Zoology has been the focus of the department right from its inception. Emphasis is given on education both within and outside the classroom.

The Department is dedicated to fulfill the following objectives through the curricular and co-curricular activities:

- To provide students with knowledge of fundamental principles in zoology that will provide a foundation for their later advanced course in more specific biological subjects.
- To make students familiar with animal classification schemes and other applied courses as well as developing an understanding of and ability to apply basic zoological principles.
- To integrate the laboratory and lecture sections of the course and directed toward teaching students both in the classroom and on the field.
- To provide quality education offering skill based programs and motivate the students for self-employment in applied branches of Zoology.
- To inculcate the value based education and entrepreneurial skills among the students.
- To create awareness on environmental issues through various activities.

Programme Outcomes:

After successfully completing B**. Sc. (Zoology)** Programme students will be able to:

PO1. Communicate scientific information through effective formal and informal methods generally used in sciences.

PO2. Conduct basic scientific research and provide inputs for societal benefits.

PO3. Develop competence in basic sciences and in the content of the specific courses

that constitute the principal knowledge of their degree.

PO4. Compare and contrast the characteristics of animals that differentiate them from other forms of life.

PO5. Acquire the skills in handling scientific instruments, planning and performing in laboratory experiments.

PO6. Understand and be aware of relevant theories, paradigms, concepts and principles of zoology.

PO7: Understand the structure and functions of cell types

PO8: Acquire time management and self-management skills.

PO9: Relate the various abiotic factors with health of living forms and ecosystems.

PO10: Explain the role of various biomolecules in living systems

PO11: Apply the knowledge of Zoology to understand the complex life Processes and phenomena.

PO12: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning.

Programme Specific Outcomes

PSO1. Ability to connect and apply biological knowledge to other disciplines and to integrate knowledge into their personal and professional lives.

PSO2. Explain the origin of life with context to the origin of eukaryotic cell and endosymbiotic theory of origin., fossil records, Darwinism and Neo- Darwinism, experimental evidences.

PSO3. Illustrate zoological science for its application in branches like medical entomology, apiculture, aquaculture and agriculture etc

PSO4. Understand animal interactions with the environment and identify the major groups of organisms with an emphasis on animals and classify them within a phylogenetic framework.

Course Outcomes

B. Sc. (Zoology) First Year B.Sc.

Course ZO 111 –Animal Diversity I

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

CO1: Demonstrate anatomical and physiological attributes of each animal group and why these have led to their success.

CO2: Identify a range of invertebrate and vertebrate animals

CO3: Describe the morphology, habit and habitat. Systematic position and various systems in *Paramecium.*

CO5: List the various animals in a given phylum.

CO6: State the animal classification.

CO7: Enlist the examples of the phylums studied.

CO8: Comment on the modifications of common animal forms of the groups studied.

Course ZO 121-Animal Diversity II.

After successfully completing this course, students will be able to: CO1:
List the various animals in a given phylum of invertebrates

CO2: Identify various larval stages and development in invertebrate groups

CO3: Explain various modifications in these groups and the need of the modification for survival.

CO4: Explain various adaptations in insects including mimicry and metamorphosis

CO5: Describe the morphology, habit and habitat, systematic position and various systems in Star fish.

CO6: State the outline of animal classification of non-chordates

CO7: Classify the higher invertebrate groups.

Course: ZO 122 Cell Biology

After successfully completing this course, students will be able to: CO1: Differentiate prokaryotic and Eukaryotic cells.

CO2: Explain the principles of staining.

CO3: Describe the structure and functions of cell organelles.

CO4: Label the various cell parts and Cell organelles.

CO5: Explain the cell division process and its significance.

ZO112 : Animal ecology

CO1: identify and evaluate impact on ecosystem

CO2: analyse and understand issues to conserve nature

CO3: explain link to food chain , food web , biotic and abiotic components

CO4: describe population community , animal interactions .

Course: ZO 113 and 123 Practicals in Zoology:

After successfully completing this course, students will be able to: CO1: Identify various animals based on morphological features.

CO2: Prepare the culture of *Paramecium*

CO3: Prepare stained slides of mitosis.
CO4: Identify the cell division phases
CO5: Detect human blood group
CO7: Identify the cell organelles.

B. Sc. (Zoology) Second Year B.Sc.

Course ZO 231-Animal Diversity III.

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

CO1: List the various animals in a given phylum of invertebrates

CO2: Identify various larval stages and development in invertebrate groups

CO3: Explain various modifications in these groups and the need of the modification for survival.

CO4: Explain various adaptations in insects including mimicry and metamorphosis

CO5: Describe the morphology, habit and habitat, systematic position and various systems in Star fish.

CO6: State the outline of animal classification of non-chordates

CO7: Classify the higher invertebrate groups.

CO8: Categorize the diversity found in the invertebrate groups of animals like Arthropoda, Mollusca and Echinodermata.

Course ZO 232: Applied Zoology I

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

CO1: Define the concepts of the applied subjects like Fisheries, Aquaculture and Pest Control.

CO2: Identify, freshwater, Marine water fishes.

CO3: Explain the tools and techniques used in aquaculture and agricultural practices.
CO4: Describe the fish species commonly used in fishery business.
CO5: Describe the common agricultural pests from nearby area.
CO6: Illustrate the diseases in aquaculture and agriculture.
CO7: Classify freshwater and Marine water fishes.
CO8: Categorize economically important fish species.

Course ZO241-Animal Diversity IV.

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

CO1: List the various vertebrate animals in a given class.

CO2: Identify poisonous and non-poisonous snakes.

CO3: Explain various modifications in the given group of animals.

CO4: Explain various adaptations in avian group as well as migration and flight in birds.

CO5: Describe the morphology, habit and habitat. Systematic position and various systems in *Scoliodon*.

CO6: State the outline of chordate classification.

CO7: Classify the higher vertebrate groups.

CO8: Categorize the diversity found in the vertebrate groups of animals like reptiles, birds and mammals.

Course ZO242: Applied Zoology II

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

CO 1: Define the concepts of the applied subjects like Apiculture and Sericulture.

CO 2: Identify different species and casts of honeybees and species of silkworm.

CO 3: Explain the tools and techniques used in apiculture and sericulture.

CO 4: Explain the important pests of apiculture and sericulture.

CO 5: Describe the economic importance of honeybee and silkworm.

CO 6: Illustrate management of the apiary and sericulture units.

CO 7: Classify of *Apis, Bombyx* and *Anthereria.*

CO 8: Select economically important species of *Apis* for unifloral and multifloral honey production.

Course ZO 233 and 243 : Practicals in Zoology:

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

CO1: Identify animals of higher groups in Invertebrates and Vertebrates.

CO2: Distinguish between poisonous and non-poisonous snakes

CO3: Label various parts of the animals and their modifications

CO4: Observe the various tools, crafts and gears used in Apiary, Fishery, Sericulture and Pest control.

CO5: Identify the pests in agriculture and enemies in Apiary

CO6: Explain the modifications and adaptations in animals

CO7: Explain the use of tools in Apiary, Sericulture and appliances in Pest control.

CO8: Describe External features and economic importance of freshwater and Marine water fishes and other aquaculture organisms

CO9: Describe the morphology, habit and habitat. Systematic position and various systems in starfish and *Scoliodon*