TGTWR DEGREE COLLEGE (GIRLS), DAMMAPETA

BHADRADRI KOTHAGUDEM DIST.

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2018-2019

DEPARTMENT OF ZOOLOGY

PROGRAMME SPECIFIC OUT COMES

	ZOOLOGY
PSO-1	Understand the diversity, structure, and function of animals from simple to complex forms.
PSO-2	Explain ecological principles, animal distribution, and environmental interactions
PSO-3	Apply concepts of genetics, cell biology, and developmental biology to biological problems.
PSO-4	Demonstrate knowledge of immunology and modern biotechnological techniques.
PSO-5	Analyze applied aspects of zoology in health, agriculture, and industry
PSO-6	Develop scientific skills including observation, experimentation, and data interpretation.
PSO-7	Address environmental and conservation issues with ethical responsibility. Communicate biological concepts effectively in academic and research contexts.

COURSE OUTCOMES OF B.Sc.-ZOOLOGY

1. Diversity of Animals – Invertebrates

CO1: Classify invertebrates based on structural and functional characteristics.
CO2: Describe morphology, anatomy, and life cycles of major invertebrate phyla.
CO3: Explain evolutionary relationships among invertebrate groups.
CO4: Analyze ecological and economic importance of invertebrates.
CO5: Identify invertebrate specimens using taxonomic keys.

2. Ecology, Zoogeography and Animal Behaviour

CO1: Explain ecological concepts such as ecosystem, food chain, and energy flow.
CO2: Describe patterns of animal distribution and zoogeographical regions.
CO3: Analyze factors influencing biodiversity and conservation.
CO4: Interpret different types of animal behaviour and their adaptive significance.
CO5: Evaluate environmental issues and suggest conservation strategies.

3. Diversity of Vertebrates and Developmental Biology

CO1: Classify vertebrates and explain their distinguishing features.
CO2: Describe comparative anatomy and physiology of vertebrates.
CO3: Explain principles and stages of embryonic development.
CO4: Analyze evolutionary trends in vertebrates.
CO5: Understand developmental mechanisms and their applications.

4. Cell Biology, Genetics and Developmental Biology

CO1: Describe cell structure, organelles, and cellular processes.
CO2: Explain principles of inheritance and genetic variation.
CO3: Solve genetic problems using Mendelian and molecular concepts.
CO4: Analyze gene expression and regulation mechanisms.
CO5: Understand the molecular basis of development.

5. Immunology and Animal Biotechnology

CO1: Explain components and functioning of the immune system.
CO2: Describe antigen-antibody interactions and immune responses.
CO3: Understand principles of vaccines and immunological techniques.
CO4: Explain basic concepts and tools of animal biotechnology.
CO5: Analyze applications of biotechnology in medicine and research.

6. Applied Zoology

CO1: Understand applied aspects such as aquaculture, sericulture, apiculture, and poultry.
CO2: Explain pest control methods and vector management.
CO3: Analyze economic importance of animals in agriculture and industry.
CO4: Apply zoological knowledge to solve real-life problems.
CO5: Develop awareness about entrepreneurship in zoological fields.

2019-2020

DEPARTMENT OF ZOOLOGY

PROGRAMME SPECIFIC OUT COMES

	ZOOLOGY
PSO-1	Students gain knowledge and skill in the fundamentals of animal science, understand the complex interactions among various living organisms.
PSO-2	Analyze complex interactions among the various animals of different phyla, their distribution and their relationship with the environment.
PSO-3	Apply the knowledge of internal structure of cell, its functions in control of various metabolic functions of organisms.
PSO-4	Understands the complex evolutionary processes and behavior of animals.
PSO-5	Correlates the physiological processes of animals and relationship of organ systems.
PSO-6	Understanding of environmental conservation processes and its importance, pollution control and biodiversity and protection of endangered species.
PSO-7	Understands about various concepts of genetics and its importance in human health.

COURSE OUTCOMES OF B.Sc.-ZOOLOGY

PAPER-I

Diversity of Animals – Invertebrates

- CO1: Classify invertebrates based on structural and functional characteristics.
- CO2: Describe morphology, anatomy, and life cycles of major invertebrate phyla.
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- CO5: Identify invertebrate specimens using taxonomic keys.

PAPER-II

- CO1: Classify vertebrates and explain their distinguishing features.
- CO2: Describe comparative anatomy and physiology of vertebrates.
- CO3: Explain principles and stages of embryonic development.
- CO4: Analyze evolutionary trends in vertebrates.
- CO5: Understand developmental mechanisms and their applications.

PAPER-III

Physiology,Biochemistry & Animal behaviour

- Seeks to understand the mechanisms that work to keep the human body alive and functioning.
- Physiological & Bio chemical understanding through scientific enquiry into the nature of mechanical, physical & Bio chemical functions of humans,Their organs & the cells of which they are composed
- Interaction & Interdependence of physiological & Bio chemical processes.

PAPER-IV

Cell biology,Genetics

- Structural and functional aspects of basic unit of life that is cell concepts
- Mendelian and Non mendelian inheritance
- Concept behind genetic disorder,gene mutation-various causes associated with inborn errors of metabolism
- Understand Animal behaviour and response of Animal to different insects.

Molecular genetics & Developmental biology

- Knowledge about Genetics ,Developmental biology & organogenesis
- Application of DNA Technology & Molecular biology for research
- Gains knowledge about Gametogenesis,Cleavage mechanisams,gastrulation and role of hormones and metamorphosis and regeneration
- Provides students insight into maintaing healthy relationship with their opposite gender and allows them to make right choice about
- their life partner thus preventing congenital/consanguial diseases.

PAPER-V

Immunology

- Co I Imparts in depth knowledge of tissues , cells & Molecules involved in host defence mechanisms
- CO 2 Understanding of types of immunity.
- CO 3 Interaction of antigens ,antibodies , complements and their immune components
- CO 4 Understanding of immune mechanism in disease control, vaccination, process of immune interaction

Animal biotechnology

- Imparts the knowledge to culture animal cells in artificial media
- Knowledge of animal cells in culture,growth of cell lines
- Use in recombinant DNA Technology ,genetic manipulation and in a variety of industrial processes

PAPER-VI

Ecology, Zoogeography and Evolution

- Distribution of fauna in different realms interaction
- Interaction of biota & a biota
- Various kinds of animal adaptations.
- Imparts knowledge regarding various theories of evolution,evolutionary process such as variation , speciation ,natural selection , origin of primates and man.
- Understanding of origin and salient features of Ostracoderms to Actinopterygii , adaptive radiations of amphibians , reptiles ,birds and mammals
- Gains knowledge of functional anatomy of vertebrates from fishes to mammals

- Understanding of evolutionary significance of internal fertilization , neoteny and paedogenesis
- Identifies the significance of amniotic egg it's structure and evolutionary significance of skeletal system

Bio diversity and conservation

- Bio diversity and conservation explores natural landscape , species and ecosystems and acquires theories and practical methods in preserving environments and organisms
- Bio diversity refers not only to endangered species but also to every organism including microbes and fungi
- Bio diversity and conservation increase awareness and understanding of human life depends on preserving animal species and natural ecosystem

2025-2026

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PSO-5	Correlates the physiological processes of animals and relationship of organ systems.
PSO-6	Understanding of environmental conservation processes and its importance, pollution control and biodiversity and protection of endangered species.
PSO-7	Understands about various concepts of genetics and its importance in human health.

COURSE OUTCOMES OF B.Sc.-ZOOLOGY

PAPER-I

Animal Diversity – Invertebrates, vertebrates

- Describe general taxonomic rules on animal classification.
- Classify Protista up to phylum using examples from parasitic adapation.
- Classify Phylum Porifera to Echinodermata with taxonomic keys
- Describe Phylum Nematoda and give examples of pathogenic Nematodes

PAPER-II

Comparative anatomy of vertebrates and developmental biology

- Students will gain comprehensive knowledge of animal physiology and developmental biology, understanding structure–function relationships across different animal groups.
- Ability to compare physiological processes and developmental patterns among various taxa, highlighting evolutionary adaptations and diversity.

  Apply physiological and developmental principles to real-world biological problems, including health, environment, and biotechnology.
- Develop skills to analyze experimental data, interpret biological phenomena, and draw logical conclusions from comparative studies.

  Acquire practical skills in handling laboratory equipment, conducting experiments, and using modern biological techniques relevant to physiology and developmental biology.
- Enhance the ability to design basic research experiments, understand scientific literature, and engage in independent or collaborative research work.
- Recognize the evolutionary basis of physiological mechanisms and developmental processes across species. Develop awareness about biodiversity conservation, ethical handling of animals, and the impact of environmental changes on physiological systems.
- Effectively communicate scientific ideas through written reports, presentations, and discussions in the field of zoology.
- Integrate knowledge from related fields such as genetics, biochemistry, and molecular biology to better understand animal physiology and development.

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Applied Zoology

- Understand concept of fisheries , fishing tools and site selection
- Aqua culture systems , induced breeding techniques , post harvesting techniques
- Understands about composition of blood , blood born disease , autopsy & biopsy
- Types of immunity , antigens – antibodies and their properties

Sericulture

- Gives knowledge of silk worm rearing.
- Mulberry cultivation
- Pest and diseases associated with silk worm and mulberry
- Various process involved in silk production