**Program Outcomes (POs) – B.Sc. Zoology (FYUGP)**

Upon completion of the B.Sc. Zoology program, students will be able to:

1. **PO1: Foundational Knowledge**  
   Understand and explain the structure, function, diversity, and evolution of animals and their ecological interactions.
2. **PO2: Scientific Skills**  
   Apply scientific methodology, including observation, experimentation, and statistical analysis in zoological research.
3. **PO3: Environmental & Ethical Awareness**  
   Demonstrate awareness about environmental issues, wildlife conservation, biodiversity, and the ethical treatment of animals.
4. **PO4: Critical Thinking and Problem Solving**  
   Analyze biological data, interpret results, and draw meaningful conclusions in relation to animal biology and applied zoology.
5. **PO5: Technological Proficiency**  
   Use modern tools, instruments, and techniques for biological research, biostatistics, and computer-based analysis.
6. **PO6: Communication and Teamwork**  
   Effectively communicate scientific knowledge through oral, written, and visual means and collaborate with peers in group-based learning or fieldwork.
7. **PO7: Research Orientation**  
   Formulate research questions and carry out independent or team-based research projects with a focus on current zoological issues.
8. **PO8: Lifelong Learning & Career Readiness**  
   Build the foundation for competitive exams, higher studies, teaching, wildlife conservation, biotechnology, or roles in health and environmental sectors.

**Program Specific Outcomes (PSOs)**

After completing the B.Sc. in Zoology, students will be able to:

1. **PSO1:** Identify and classify invertebrates and vertebrates based on morphology, anatomy, and physiology.
2. **PSO2:** Understand cellular processes, genetics, development, endocrinology, and immunological responses in animals.
3. **PSO3:** Evaluate animal biodiversity, ecological roles, and conservation strategies in varied ecosystems.
4. **PSO4:** Demonstrate hands-on expertise in dissection, microscopy, biochemical analysis, field survey, and biostatistics.
5. **PSO5:** Apply principles of applied zoology (e.g., sericulture, apiculture, vermiculture, fishery biology) in small-scale industries or entrepreneurial ventures.
6. **PSO6:** Utilize modern techniques like molecular biology, genetic engineering, and biotechnology in zoological research.

**Course Outcomes (COs)**

Below are representative Course Outcomes from core (DSC) and elective (DSE/SEC/VAC) courses:

**Semester I – DSC-I: Life on Earth and Unique Attributes of Animal Kingdom**

* CO1: Understand the origin of life, biodiversity, and animal classification systems.
* CO2: Compare structural and functional organization of different animal phyla.
* CO3: Explain evolutionary trends in major animal groups.
* CO4: Analyze the ecological and adaptive significance of unique animal traits.

**Semester II – DSC-II: Cell Biology and Histology**

* CO1: Explain the structure and function of cell organelles and membranes.
* CO2: Describe the principles of histological techniques.
* CO3: Identify tissue types and their physiological significance.
* CO4: Interpret microscopic slides of basic animal tissues.

**Semester III – DSC-III: Diversity of Invertebrates**

* CO1: Classify invertebrates with respect to morphology and evolutionary relationships.
* CO2: Explain the anatomy, physiology, and life cycles of representative phyla.
* CO3: Discuss the ecological roles of invertebrates.
* CO4: Develop skills in specimen identification and microscopic observation.

**Semester IV – DSC-IV: Diversity of Chordates & Comparative Anatomy**

* CO1: Compare chordate groups based on anatomical and embryological features.
* CO2: Understand the adaptive radiation in vertebrates.
* CO3: Relate comparative anatomy to phylogeny.
* CO4: Perform anatomical dissections and organ system analysis.

**Semester V – DSC-V: Vertebrate Physiology**

* CO1: Understand physiological processes in respiration, digestion, circulation, and excretion.
* CO2: Describe neural, hormonal, and muscular control systems.
* CO3: Perform physiological experiments and data analysis.
* CO4: Relate physiological functions to environmental adaptations.

**Semester VI – DSC-VI: Genetics**

* CO1: Explain Mendelian and molecular basis of inheritance.
* CO2: Interpret linkage, crossing over, mutation, and chromosomal aberrations.
* CO3: Solve genetic problems and pedigree charts.
* CO4: Understand the principles of population and evolutionary genetics.