

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

B.Sc. (Zoology) Major — 4-Year UG Honours

Semester-Wise Syllabus

Semesters I – VI | Theory & Practicals | w.e.f. AY 2025–26

Curriculum Framework Compliance • NEET/CUET-PG Orientation • Skill-Based Learning

COURSE STRUCTURE OVERVIEW

Semester	Year	Core Papers	Theory Hrs	Practical Hrs	Credits
I	Year I	2	6	4	8
II	Year I	2	6	4	8
III	Year II	2	6	4	8
IV	Year II	3	9	6	12
V	Year III	3+5 Elect.	9+15	6+10	12+20
VI	Year III	5 Electives	15	10	20

SEMESTER I

Year: I | Core Courses: 2 | Theory: 6 hrs/week | Practical: 4 hrs/week | Total Credits: 8 | Focus: Animal Diversity (Foundation Level)

THEORY PAPERS

PAPER 1: ANIMAL DIVERSITY-I — BIOLOGY OF NON-CHORDATES

Core Subject | Credits: 3 | 3 Hrs/Week

1. Unit I — Animal Kingdom Classification: Whittaker's 5-kingdom concept; Protozoa — General characters, classification, locomotion, nutrition, reproduction (Amoeba, Paramoecium, Plasmodium)
2. Unit II — Porifera & Coelenterata: General characters, canal system in sponges; Polymorphism in coelenterates; Corals and coral reefs
3. Unit III — Platyhelminthes & Nematelminthes: General characters; Parasitic adaptations in helminths; Life cycle of *Ascaris lumbricoides*
4. Unit IV — Annelida & Arthropoda: General characters; Vermiculture — scope and economic importance; *Peripatus* — structure and affinities
5. Unit V — Mollusca, Echinodermata & Hemichordata: General characters; Pearl formation; Water vascular system in Starfish; *Balanoglossus* — structure and affinities

PAPER 2: ANIMAL DIVERSITY-II — BIOLOGY OF CHORDATES

Core Subject | Credits: 3 | 3 Hrs/Week

6. Unit I — Protochordata & Cyclostomata: General characters; Cephalochordata and Urochordata; *Herdmania* life history; Retrogressive metamorphosis; *Petromyzon* vs *Myxine*
7. Unit II — Fishes (Pisces): General characters; Dipnoi; *Scoliodon* — digestive, respiratory, circulatory systems; Brain structure; Migration in fishes; Types of scales
8. Unit III — Amphibia & Reptilia: General characters; *Rana hexadactyla* — respiratory, cardiac, neural systems; Calotes; Identification of poisonous snakes
9. Unit IV — Aves: General characters; *Columba livia* — digestive, respiratory, cardiac and neural systems; Migration in birds; Flight adaptations
10. Unit V — Mammalia: General characters and classification; Comparison of Prototherians, Metatherians and Eutherians; Dentition; Aquatic mammal adaptations

PRACTICAL / LABORATORY

PRACTICAL 1: ANIMAL DIVERSITY-I (Non-Chordates Lab)

Credits: 1 | 2 Hrs/Week

1. Study of museum slides/specimens/models — Classification of animals up to Orders
2. Protozoa: Amoeba, Paramoecium (binary fission & conjugation), Vorticella, Entamoeba histolytica, Plasmodium vivax
3. Porifera: Sycon, Spongilla, Euspongia; T.S. & L.S. of Sycon; Spicules; Gemmule
4. Coelenterata: Obelia (colony & medusa), Aurelia, Physalia, Velella, Corallium, Gorgonia, Pennatula
5. Platyhelminthes: Planaria, Fasciola hepatica and larval forms (Miracidium, Redia, Cercaria), Taenia solium, Schistosoma haematobium
6. Nematelminthes: Ascaris (male & female), Drancunculus, Ancylostoma, Wuchereria
7. Annelida: Nereis, Aphrodite, Chaetopterus, Hirudinaria, Trochophore larva
8. Arthropoda: Cancer, Palaemon, Scorpion, Scolopendra, Sacculina, Limulus, Peripatus; Nauplius, Mysis, Zoea larvae; Mouthparts of Anopheles, Culex, Housefly, Butterfly
9. Mollusca: Chiton, Pila, Unio, Pteredo, Murex, Sepia, Loligo, Octopus, Nautilus; Glochidium larva
10. Echinodermata: Asterias, Ophiothrix, Echinus, Clypeaster, Cucumaria, Antedon; Bipinnaria larva
11. Hemichordata: Balanoglossus, Tornaria larva
12. Dissection (Computer-aided/Virtual): Edible invertebrate (Prawn/Pila) as per UGC guidelines; Animal Album preparation

PRACTICAL 2: ANIMAL DIVERSITY-II (Chordates Lab)

Credits: 1 | 2 Hrs/Week

13. Protochordata: Herdmania, Amphioxus, Amphioxus T.S. through pharynx
14. Cyclostomes: Petromyzon and Myxine
15. Pisces: Pristis, Torpedo, Hippocampus, Exocoetus, Echeneis, Labeo, Catla, Clarius, Channa, Anguilla
16. Amphibia: Ichthyophis, Ambystoma, Axolotl larva, Hyla
17. Reptilia: Draco, Chamaeleon, Uromastyx, Testudo, Trionyx, Russel's Viper, Naja, Krait, Hydrophis, Crocodile
18. Aves: Psittacula, Eudynamis, Bubo, Alcedo
19. Mammalia: Ornithorhynchus, Pteropus, Funambulus
20. Dissections (demo/virtual): Scoliodon — IX and X cranial nerves; Brain
21. Mounting of fish scales