



SRI VENKATESWARA UNIVERSITY

Programme: Syllabus for Zoology (Minor)

w.e.f. AY 2026-27

COURSE STRUCTURE

Year	Semester	Course	Title of the Course	No. of Hrs /Week	No. of Credits
II	III	1	Animal Diversity-I Biology of Non-Chordates	3	3
			Animal Diversity-I Biology of Non-Chordates-Practical	2	1

SEMESTER-III

COURSE 1: ANIMAL DIVERSITY-I BIOLOGY OF NON-CHORDATES

Theory

Credits: 3

3 hrs/week

COURSE OBJECTIVES:

- To understand the taxonomic position of protozoa to helminthes.
- To understand the general characteristics of animals belonging to Protozoa to Hemichordate.
- To understand the structural organization of animals phylum from protozoa to Hemi chordata.
- To understand the origin and evolutionary relationship of different phyla from Protozoa to Hemi chordata.
- To understand the origin and evolutionary relationship of different phylum from annelids to hemichordates.

LEARNING OUTCOMES:

By the completion of the course the graduate should able to –

- Describe concept of animal kingdom classification and general characters of Protozoa
- Classify Porifera and Coelenterate with taxonomic keys
- Classify Phylum Platy & Nematelminths using examples, parasitic adaptation
- Describe Phylum Annelida & Arthropoda using examples and economic importance of vermicomposting & economic importance of insects.
- Describe Mollusca, Echinodermata & Hemi chordata with suitable examples in relation to the phylogeny

SYLLABUS:

UNIT-I:

- 1.1 Whittakers five kingdom concept and classification of Animal Kingdom.
- 1.2 Protozoa General Characters and classification up to classes with suitable examples
- 1.3 Protozoa Locomotion & nutrition
- 1.4 Protozoa reproduction

Activity: Assignment/Seminar on the above

Evaluation: Marks to be awarded for written and oral presentations

UNIT –II:

- 2.1 Porifera General characters and classification up to classes with suitable examples
- 2.2 Canal system in sponges
- 2.3 Coelenterata General characters and classification up to classes with suitable examples
- 2.4 Polymorphism in coelenterates & Corals and coral reefs

Activity: Assignment/Seminar/Quiz/Project on the above

Evaluation: Evaluation of Written part Evaluation of oral Presentation, Assessment of students in Quiz participation and Ranking - Evaluation of Project Report and oral presentation

UNIT – III:

- 3.1 Platyhelminthes General characters and classification up to classes with suitable examples
- 3.2 Parasitic Adaptations in helminthes
- 3.3 Nematelminthes General characters and classification up to classes with suitable examples
- 3.4 Life cycle and pathogenicity of *Ascaris lumbricoides*

Activity: Assignment /Seminar /Quiz/Project/Peer teaching on the above

Evaluation: Instructor supposed to prepare a detailed Rubrics for the evaluation of the above activity

UNIT – IV:

- 4.1 Annelida General characters and classification up to classes with suitable examples
- 4.2 Vermiculture - Scope, significance, earthworm species, processing, Vermicompost, economic importance of vermicompost
- 4.3 Arthropoda General characters and classification up to classes with suitable examples
- 4.4 *Peripatus* - Structure and affinities

Activity: Assignment /Seminar /Quiz/Project/Peer teaching on the above

Evaluation: Instructor supposed to prepare a detailed Rubrics for the evaluation of the above activity

UNIT – V:

- 5.1 Mollusca General characters and classification up to classes with suitable examples
- 5.2 Pearl formation in Pelecypoda
- 5.3 Echinodermata General characters and classification up to classes with suitable examples
Water vascular system in star fish
- 5.4 Hemichordata General characters and classification up to classes with suitable examples
Balanoglossus - Structure and affinities

Activity: Assignment /Seminar /Quiz/Project/Peer teaching on the above

Evaluation: Instructor supposed to prepare a detailed Rubrics for the evaluation of the above activity

CO-CURRICULAR ACTIVITIES:

- Preparation of chart/model of phylogenic tree of life, 5-kingdom classification
- Visit to Zoology Museum or Coral Island as part of Zoological tour
- Charts on polymorphism
- Clay models of canal system in sponges
- Plaster-of-paris model of *Peripatus*
- Construction of a vermicompost in each college, manufacture of manure by students and donating to local farmers
- Chart on pearl forming layers using clay
- Visit to a pearl culture rearing industry/institute
- Live model of water vascular system
- Observation of *Balanoglossus* for its tubicolous habit

REFERENCE BOOKS:

- L.H. Hyman „*The Invertebrates*’ Vol I, II and V. – M.C. Graw Hill Company Ltd.
- Kotpal, R.L. 1988 - 1992 Protozoa, Porifera, Coelenterata, Helminthes, Arthropoda, Mollusca, Echinodermata. Rastogi Publications, Meerut.
- E.L. Jordan and P.S. Verma „*Invertebrate Zoology*’ S. Chand and Company.
- R.D. Barnes „*Invertebrate Zoology*’ by: W.B. Saunders CO., 1986.
- Barrington. E.J.W., „*Invertebrate structure and Function*’ by ELBS.
- P.S. Dhami and J.K. Dhami. *Invertebrate Zoology*. S. Chand and Co. New Delhi.
- Parker, T.J. and Haswell “*A text book of Zoology*’ by, W.A., Mac Millan Co. London.
- Barnes, R.D. (1982). *Invertebrate Zoology*, V Edition”

SEMESTER-III

COURSE 1: ANIMAL DIVERSITY-I BIOLOGY OF NON-CHORDATES

Practical

Credits: 1

2 hrs/week

COURSE OBJECTIVES

- To understand the importance of preservation of museum specimens
- To identify animals based on special identifying characters
- To understand different organ systems through demo or virtual dissections
- To maintain a neat, labelled record of identified museum specimens

SYLLABUS:

- Study of museum slides / specimens / models (Classification of animals up to orders)
- Protozoa: *Amoeba*, *Paramoecium*, *Paramoecium* Binary fission and Conjugation, *Vorticella*, *Entamoeba histolytica*, *Plasmodium vivax*
- Porifera: *Sycon*, *Spongilla*, *Euspongia*, *Sycon*- T.S & L.S, Spicules, Gemmule
- Coelenterata: *Obelia* – Colony & Medusa, *Aurelia*, *Physalia*, *Velella*, *Corallium*, *Gorgonia*, *Pennatula*
- Platyhelminthes: *Planaria*, *Fasciola hepatica*, *Fasciola* larval forms – *Miracidium*, *Redia*, *Cercaria*, *Echinococcus granulosus*, *Taenia solium*, *Schistosoma haematobium*
- Nematelminths: *Ascaris* (Male & Female), *Dracunculus*, *Ancylostoma*, *Wuchereria*
- Annelida: *Nereis*, *Aphrodite*, *Chaetopterus*, *Hirudinaria*, Trochophore larva
- Arthropoda: *Cancer*, *Palaemon*, *Scorpion*, *Scolopendra*, *Sacculina*, *Limulus*, *Peripatus*,
- Larvae - Nauplius, Mysis, Zoea, Mouth parts of male & female *Anopheles* and *Culex*, Mouthparts of Housefly and Butterfly.
- Mollusca: *Chiton*, *Pila*, *Unio*, *Pterodo*, *Murex*, *Sepia*, *Loligo*, *Octopus*, *Nautilus*, Glochidium larva
- Echinodermata: *Asterias*, *Ophiothrix*, *Echinus*, *Clypeaster*, *Cucumaria*, *Antedon*, Bipinnaria larva
- Hemichordata: *Balanoglossus*, Tornaria larva

Dissections:

Computer - aided techniques should be adopted or show virtual dissections Dissection of edible (Prawn/Pila) invertebrate as per UGC guidelines

An “Animal album” containing photographs, cut outs, with appropriate write up about the above-mentioned taxa. Different taxa/ topics may be given to different sets of students for this purpose

REFERENCE WEB LINKS:

- <https://virtualmicroscopy.peabody.yale.edu/>
- <https://tnhm.in/category/assorted-gallery-for-vertebrates-and-invertebrates/invertebrates/>
- <http://www.nhc.ed.ac.uk/index.php?page=24.25.312>
- <https://biologyjunction.com/invertebrate-notes/>
- <https://lanwebs.lander.edu/faculty/rsfox/invertebrates/>
- <https://www.zoologyresources.com/uploadfiles/books/dc64b77d8769325515d17c945e461b45.pdf>

4- Year UG Honours MINOR

Syllabus

(2026-27)

Semester-III

Model Question Paper

Time : 3hrs

Marks:75

Part-A

Answer any Five Questions. Each Question carries 3 Marks.

5x3=15

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

Answer the following questions. Each question carries 12 Marks

5x12=60

11. a) Unit-I
(Or)
b) Unit-I

12. a) Unit-II
(Or)
b) Unit-II

13. a) Unit-III
(Or)
b) Unit-III

14. a) Unit-IV
(Or)
b) Unit-IV

15. a) Unit-V
(Or)
b) Unit-V