



SRI VENKATESWARA UNIVERSITY

Programme: B.Sc. Honours in Zoology (Major)
w.e.f. AY 2025-26

COURSE STRUCTURE (for Semester I to IV)

Year	Semester	Course	Title of the Course	No. of Hrs /Week	No. of Credits
I	I	1	Animal Diversity-I Biology of Non- Chordates	3	3
			Animal Diversity-I Biology of Non-Chordates-Practical	2	1
		2	Animal Diversity-II Biology of Chordates	3	3
			Animal Diversity-II Biology of Chordates-Practical	2	1
	II	3	Cell and Molecular Biology	3	3
			Cell and Molecular Biology-Practical	2	1
		4	Embryology	3	3
			Embryology-Practical	2	1
II	III	5	Genetics	3	3
			Genetics-Practical	2	1
		6	Evolution and Zoogeography	3	3
			Evolution and Zoogeography-Practical	2	1
		7	Animal Physiology: Life Sustaining systems	3	3
			Animal Physiology: Life Sustaining systems-Practical	2	1
	IV	8	Immunology	3	3
			Immunology-Practical	2	1
		9	Animal Biotechnology	3	3
			Animal Biotechnology-Practical	2	1
	10	10	Wildlife and Conservation Biology	3	3
			Wildlife and Conservation Biology-Practical	2	1

Note: In the III Year (during the V and VI Semesters), students are required to select a pair of electives from one of the **Five** specified domains. **For example: if set 'A' is chosen, courses 12 to 15 to be chosen as 12 A, 13 A, 14 A and 15 A.** To ensure in-depth understanding and skill development in the chosen domain, students must continue with the same domain electives in both the V and VI Semesters.

SEMESTER-I

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 student will able to –

- Describe concept of animal kingdom classification and general characters of Protozoa
- Classify Porifera and Coelenterata with taxonomic keys
- Classify Phylum Platy & Nematelminthes using examples, parasitic adaptation
- Describe Phylum Annelida & Arthropoda using examples and economic importance of vermicomposting & economic importance of insects.
- Describe Mollusca, Echinodermata & Hemichordata 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 helminths
- 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 phylogenetic 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-I

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:

1. Study of museum slides / specimens / models (Classification of animals up to orders)
2. Protozoa: *Amoeba*, *Paramecium*, *Paramecium* Binary fission and Conjugation, *Vorticella*, *Entamoeba histolytica*, *Plasmodium vivax*
3. Porifera: *Sycon*, *Spongilla*, *Euspongia*, *Sycon*- T.S & L.S, Spicules, Gemmule
4. Coelenterata: *Obelia* – Colony & Medusa, *Aurelia*, *Physalia*, *Velella*, *Corallium*, *Gorgonia*, *Pennatula*
5. Platyhelminthes: *Planaria*, *Fasciola hepatica*, *Fasciola* larval forms – *Miracidium*, *Redia*, *Cercaria*, *Echinococcus granulosus*, *Taenia solium*, *Schistosoma haematobium*
6. Nematelminths: *Ascaris* (Male & Female), *Dracunculus*, *Ancylostoma*, *Wuchereria*
7. Annelida: *Nereis*, *Aphrodite*, *Chaetopterus*, *Hirudinaria*, Trochophore larva
8. Arthropoda: *Cancer*, *Palaemon*, *Scorpion*, *Scolopendra*, *Sacculina*, *Limulus*, *Peripatus*,
9. Larvae - Nauplius, Mysis, Zoea, Mouth parts of male & female *Anopheles* and *Culex*, Mouthparts of Housefly and Butterfly.
10. Mollusca: *Chiton*, *Pila*, *Unio*, *Pteredo*, *Murex*, *Sepia*, *Loligo*, *Octopus*, *Nautilus*, Glochidium larva
11. Echinodermata: *Asterias*, *Ophiothrix*, *Echinus*, *Clypeaster*, *Cucumaria*, *Antedon*, Bipinnaria larva
12. 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.youtube.com/watch?v=iqrVmz625WA>
- <https://www.youtube.com/watch?v=5VIJ59oX7G0>
- <https://www.youtube.com/watch?v=sMutOON6zHE>
- <https://www.youtube.com/watch?v=zSTYRtliac0>

SRI VENKATESWARA UNIVERSITY
B.Sc. Honours in Zoology (Major)
SEMESTER - W.E.F. 2025-26

Courses: 1 to 10

MODEL QUESTION PAPER

Time: 3 hours

Marks: 75 marks

Note: This question paper contains two parts A and B.

Part A is which carries 15 marks. Answer any five questions in Part A. Each question carries 3 marks.

Part B consists questions from 5 Units. Answer one full question (A or B) from each unit (i.e., Q.No 9 from Unit – I, Q.No 10 from Unit – II, Q.No 11 from Unit – III, Q.No 12 from Unit – IV, Q.No 13 from Unit – V). Each question carries 12 marks.

PART - A

Answer any Five of the following question.

(5 X 3M = 15M)

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

(P.T.O)

PART – B

Answer All The Questions. Each question carries 12 marks (5 X 12M = 60M).

11.	(A) OR (B)
12.	(A) OR (B)
13.	(A) OR (B)
14.	(A) OR (B)
15.	(A) OR (B)

IMPORTANT NOTE:

THE MODEL QUESTION PAPER REMAINS THE SAME FOR
ALL FOUR SEMESTERS (I, II, III AND IV).