Tripura University

(A Central University)

Suryamaninagar

West Tripura, Tripura – 799022

Syllabus for

Four Year Under Graduate Programme

Revised Syllabus

12/12/2023

Subject: Zoology

(Minor)

(NEP – 2020)

Year – 2023

Tripura University
(A Central University)

Course Structure of Zoology (UG Programme)
As per NEP-2020 under Tripura University

ZOOLOGY MINOR

Year	Semester	Paper Code	Paper No.	Credit	Marks	Paper Name
1st Year	I	ZL101M	Paper -1A Theory	3	60 IA=24 + ESE= 36	Non-Chordates and Economic Zoology
			Paper -1B Practical	1	40 IA=16 + ESE=24	Based on Theory Paper -1A
	II	ZL102M	Paper -2A Theory	3	60 IA=24 + ESE= 36	Chordates and Cell Biology
			Paper -2B Practical	1	40 IA=16 + ESE=24	Based on Theory Paper 2A
2nd Year	III	ZL201M	Paper -3A Theory	3	60 IA=24 + ESE= 36	Genetics and Developmental Biology
			Paper -3B Practical	1	40 IA=16 + ESE=24	Based on Theory Paper -3A
	IV	ZL202M	Paper -4A Theory	3	60 IA=24 + ESE= 36	Animal Physiology, Endocrinology and Reproductive Biology
			Paper -4B Practical	1	40 IA=16 + ESE=24	Based on Theory Paper 4A
3rd Year	V	ZL301M	Paper -5A Theory	3	60 IA=24 + ESE= 36	Evolutionary Biology, Adaptation and Zoogeography
			Paper -5B Practical	1	40 IA=16 + ESE=24	Based on Theory Paper -5A

	VI	ZL302M	Paper -6A Theory	3	60 IA=24 + ESE= 36	Ecology, Parasitology, Microbiology and Basics of Systematics
			Paper -6B Practical	1	40 IA=16 + ESE=24	Based on Theory Paper 6A
4th Year	VII	ZL401M	Paper -7A Theory	3	60 IA=24 + ESE= 36	Applied Entomology and Aquaculture
			Paper -7B Practical	1	40 IA=16 + ESE=24	Based on Theory Paper -7A
	VIII	ZL402M	Paper -8A Theory	3	60 IA=24 + ESE= 36	Biochemistry, Molecular Biology and Immunology
			Paper -8B Practical	1	40 IA=16 + ESE=24	Based on Theory Paper 8A

1st Year
Semester-I
Paper 1A: NON-CHORDATES AND ECONOMIC ZOOLOGY
Paper Code: ZL101M
Total Marks: 60 (IA = 24 + ESE = 36) Credit - 03

Non-Chordates

Unit - I

Contribution of National Scientists in Zoology—

Salim Ali, Vishwa Gopal Jhingran, Hiralal Chaudhuri, Gopal Ch Bhattacharya, Ramdeo Mishra, Hargobind Khorana, Lalji Singh, Radha D Kale, M K Chandra Sekheran, C. R. Narayan Rao, M. C. Dash, Valmik Thapar.

Phylum – Protozoa

- Classification up to class
- General Characteristics
- Locomotion in *Amoeba*

Phylum – Parazoa

- Classification up to class
- General characteristics
- Canal system of *Sycon*

Phylum – Metazoa

- Classification up to class
- General characteristics
- Trimorphism & metagenesis of *Obelia*

Unit - II

Phylum – Platyhelminthes

- Classification up to class
- General characteristics
- Life cycle of *Fasciola hepatica*

Phylum – Nemathelminthes

- Classification up to class
- General characteristics
- Life cycle of *Ascaris*

Phylum – Annelida

- Classification up to class
- General characteristics
- Digestive system of Earthworm

Unit - III

Phylum – Arthropoda

- Classification up to class
- General characteristics
- Digestive system of *Periplaneta*

Phylum – Mollusca

- Classification up to class
- General characteristics
- Respiratory system in *Pila*

Phylum – Echinodermata
- Classification up to class
- General characteristics
- Water vascular system in *Asterias*

Phylum – Hemichordata
- Classification up to class
- General characteristics of Hemichordata

Unit – IV - ECONOMIC ZOOLOGY

Vermiculture & Vermicomposting
•. Principle of vermicomposting, different ecological categories of earthworm (Epigeic, Endogeic, Anesic), importance of vermicomposting, vermitechnology & management.

Sericulture
- Principle, different types of silk moth and their host plants, rearing methods, diseases of silk moth . Management with special reference to local varieties

Apiculture
- Principle, different types of honey bees, rearing methods, diseases of honey bees. Management with special reference to local varieties

Fresh water pisciculture
- Polyculture
- Induced breeding technology
- Fish seed transportation, fish diseases,
- Management

Poultry
- Types of breeds
- Methods of rearing
- Health, diseases and their management

Basics of Dairy farming and management.

Paper 1B: PRACTICAL - 1
Paper Code: ZL101M
Total Marks: 40 (IA = 16 + ESE = 24) Credit - 01

PRACTICAL – I

1. Identification, Systematic position, and Specimen Characters
   Paramoecium, Scypha, Obelia, Physalia, Taenia, Ascaris, Metaphire, , Hirudinaria, Periplaneta, Pila, Octopus, Asterias,
2. Dissection and display of digestivesystems of *Periplaneta*
3. Mouth parts of *Periplaneta*
4. Spot identification and economic importance of— *Perionyx, Apis* sp, *Bombyx* and some major Carps (Rohu, Catla, Mrigal).

Semester-II
Paper 2A: CHORDATES AND CELL BIOLOGY
Paper Code: ZL102M
Total Marks: 60 (IA = 24 + ESE = 36) Credit - 03

Chordates

Unit - I

Protochordata
- General characteristics of Cephalochordata with special reference to ciliary mode of feeding in *Branchiostoma/Amphioxus*.
- General characteristics of Urochordata with special reference to retrogressive metamorphosis in *Ascidia*

Cyclostomata
- General characteristics of Cyclostomata
- Differences between *Petromyzon* and *Myxine*

Pisces
- General Characteristics of Chondrichthyes & Osteichthyes
- Accessory respiratory organs in fishes

Unit - II

Amphibia
- General characteristics and classification upto order
- Parental care in Amphibia

Reptilia
- General characteristics and classification upto order
- Differences between venomous and non-venomous snakes

Unit - III

Aves
- General characteristics and classification upto order
- Double mode of respiration

Mammals
- General characteristics and classification upto order
- Digestive system of ruminant and non-ruminant

Unit – IV - CELL BIOLOGY

1. Structure and function of—
   - Plasma membrane
   - Nucleus
   - Mitochondria
   - Golgi bodies
   - Ribosomes
   - Endoplasmic reticulum
   - Lysosomes
2. Cell cycle and regulations
3. Cell divisions
4. Cancer cell and its characters

Paper 2B: PRACTICAL -II
Paper Code: ZL102M
Total Marks: 40 (IA = 16 + ESE = 24) Credit - 01

PRACTICAL – II

1. Identification, systematic position, and specimen characters —*Branchiostoma, Ascidia, Petromyzon, Scoliodon, Channa, Rohu, Hyla, Naja, Columba, Chiroptera.*
2. Dissection and display of digestive system *Cirrhinus mrigala/Channa sp.*
3. Study of Mitotic cell division stages
5. Study of meiotic cell division stages (permanent slide).