



Department of Zoology
Rabindra Mahavidyalaya
Champadanga Hooghly

NOTICE

Date:18th-August-2023

It is here by informed to all the teachers and students that Syllabus distribution for Zoology Semester 1 classes will be as following.

Baisakhi Saha

Head of Department
Department of Zoology
Rabindra Mahavidyalaya
Champadanga Hooghly

**Syllabus wise distribution for 3-Year
Degree/4-Year Honours in Zoology under
Curriculum and Credit Framework for
Undergraduate Programmes (CCFUP) as
per NEP, 2020 with effect from 2023-2024**

Semester - I

Major (4 Year & 3 Year)

Department Specific Course

OBJECTIVES OF THE STUDY:

The main objective of this syllabus is to acquaint the students about the diversity of animals (invertebrates) of this universe especially their taxonomic position of animal kingdom as well as their physiology and organ system.

COURSE OUTCOMES:

At the end of the syllabus students learn the Systematic and biology of non chordates through their adaptive features and their body organization. Comprehend the identification of species and their evolutionary relationships.

Paper Code and Subject	Unit	TOPICS(Credits:3)	TOTAL NO. LECTURES (45)	Assign Teacher
ZOOL1011 [Major/DS Course (Core)] Non-Chordates	1	Basics of Animal Classification Definition: Classification, Basics of Animal Classification Definition: Classification Basics of Animal Classification Definition: Classification	2	Palas Kanti Manna
	2	Protista and Metazoa Protozoa: General Characteristics and Schematic Classification up to phylum (Levine <i>et al.</i> 1980) Locomotion in <i>Amoeba</i> , Conjugation in <i>Paramecium</i>	5	Dr. Eureka Mondal
	3	Porifera: General characteristics and schematic classification up to order (Hyman, 1951) Canal System and Spicules Of Sponges	5	Dr. Eureka Mondal
	4	Cnidaria: General characteristics and schematic classification upto class (Ruppert and Barnes.1994); Metagenesis of <i>Obelia</i> , Coral Reef Types And Formation	4	Dr. Payel Bhattacharjee
	5	Ctenophora: General Characteristics only	1	Dr. Payel Bhattacharjee
	6	Platyhelminthes: General characteristics and schematic classification upto class (Ruppert and Barnes, 1994)	2	Piyali Pakhira
	7	Nematoda : General characteristics and Schematic classification upto class (Ruppert and Barnes,1994)	2	Piyali Pakhira

	8	Annelida: General characteristics and schematic classification upto class (Ruppert and Barnes, 1994), Metamerism, Nephridia: Structure and Function	4	Palas Kanti Manna
	9	Arthropoda: General characteristics and schematic classification upto class (Ruppert & Barnes, 1994), Vision In Insects, Metamorphosis in Lepidopteran insect	6	Palas Kanti Manna
	10	Onychophora: Evolutionary Significance	2	Palas Kanti Manna
	11	Mollusca: General characteristics and schematic Classification upto class (Ruppert and Barnes, 1994), Modification Of foot, Nervous system and torsion in Gastropods	5	Dr. Eureka Mondal
	12	Echinodermata General characteristics and Schematic classification upto class (Ruppert and Barnes, 1994), Water Vascular System of Asteroidea, Structure Of Tube Feet, Larval Forms in Echinodermata	4	Dr. Payel Bhattacharjee
	13	Hemichordata General characteristics phylum Hemichordata, Relationship of non-chordates And chordates	3	Dr. Payel Bhattacharjee

Internal

Paper	Syllabus (Unit Wise)	Assigned Teacher	☎ & ✉
ZOOL1011 [Major/DS Course (Core)] Non-Chordates	Basics of Animal Classification Annelida: Arthropoda: Onychophora:	Palas Kanti Manna	9732381772, 9382113782 palasmanna84@gmail.com
	Protista and Metazoa Protozoa: Porifera: Mollusca:	Dr. Eureka Mondal	8250656417, 9476440223 mondal.eureka87@gmail.com/ eurekaugb@gmail.com/
	Cnidaria: Ctenophora: Echinodermata Hemichordata	Dr Payel Bhattachrjee	9477159440/9051141362/payel.iicb@gmail.com/ drpayelb.rmz@gmail.com
	Platyhelminthes Nematoda	Piyali Pakhira	8250576414, 7718534071 tukupakhira@gmail.com
	Total internal marks 5		

Paper Code and Subject	Unit	TOPICS (Credits:3)	TOTAL NO. LECTURES (15)	Assign Teacher
ZOOL1011 [Major/DS Course (Core)] Non-Chordates [Practical]	1	Spot Identification of <i>Amoeba</i> , <i>Euglena</i> , <i>Paramecium</i>	1	Piyali Pakhira
	2	Spot Identification of <i>Sycon</i> , Neptune's Cup, <i>Obelia</i> , <i>Pennatula</i> , <i>Fungia</i>	1	Piyali Pakhira
	3	Spot Identification and Significance of adult <i>Taenia solium</i> and <i>Ascaris lumbricoides</i>	1	Piyali Pakhira
	4	Spot identification of the following specimens <i>Annelids-Nereis, Pheretima, Hirudinaria</i> <i>Arthropods- Bombyx, Periplaneta, Apis, Anopheles, Culex.</i> <i>Molluscs-Pila, Lamellidens, Sepia, Octopus,</i> <i>Echinoderms-Pentaceros/Asterias, Ophiura, Echinus, Antedon</i>	6	Piyali Pakhira
	5	Dissection-Digestive system and nervous system of <i>Periplaneta</i> sp.	4	Piyali Pakhira
	6	Mounting Of the following specimens—Mouth part of cockroach, Whole Mount: Mosquito.	2	Piyali Pakhira

Internal

ZOO1011 [Major/DS Course (Core)] Non-Chordates [Practical]	Paper	Syllabus(Unit Wise)	Assign Teacher	Contact Number & Mail id
		SpotIdentificationof <i>Amoeba, Euglena, Paramoecium,</i>	Piyali Pakhira	8250656417, 7718534071 tukupakhira@gmail.com
		Spot Identification of <i>Sycon, Neptune's Cup, Obelia, Pennatula, Fungia</i>		
		Spot Identification and Significance of adult <i>Taenia solium</i> and <i>Ascaris lumbricoides</i>		
		Spot identification of the following specimens <i>Annelids-Nereis, Pheretima, Hirudinaria</i> <i>Arthropods-Bombyx, Periplaneta, Apis, Anopheles, Culex.</i> <i>Molluscs-Pila, Lamellidens, Sepia, Octopus,</i> <i>Echinoderms-Pentaceros/Asterias, Ophiura, Echinus, Antedon</i>		
		Dissection-Digestive System and nervous System of <i>Periplaneta sp.</i>		
		Mounting Of the following specimens— Mouthparts of cockroach, Whole Mount: Mosquito.		
Total Marks				5

Minor

OBJECTIVES OF THE STUDY:

The main objective of this syllabus is to acquaint the students with the diversity of animals (invertebrates) of this universe especially their taxonomic position of the animal kingdom as well as their physiology and organ system.

COURSE OUTCOMES:

At the end of the course students will learn about the systematics and biology of non-chordates through their adaptive features and body organization and comprehend the identification of species and their evolutionary relationships.

Paper Code and Subject	Unit	TOPICS(Credits:3)	TOTAL NO. LECTURES (45)	Assign Teacher
ZOOL1011 [Major/DS Course (Core)] Non-Chordates	1	Basics of Animal Classification Definition: Classification, Systematics and Taxonomy. Codes of Zoological nomenclature.	2	Palas Kanti Manna
	2	Protista and Metazoa Protozoa: General Characteristics and Schematic Classification up to phylum (Levine <i>et al.</i> 1980) Locomotion in <i>Amoeba</i> , Conjugation in <i>Paramecium</i>	5	Dr. Eureka Mondal
	3	Porifera: General characteristics and schematic classification up to class (Hyman, 1951). The canal system in sponges.	5	Dr. Eureka Mondal
	4	Cnidaria: General characteristics and schematic classification upto class (Ruppert and Barnes.1994); Metagenesis of Obelia, Coral reef diversity, and conservation	4	Dr. Payel Bhattacharjee
	5	Ctenophora: General Characteristics only	1	Dr. Payel Bhattacharjee
	6	Platyhelminthes: General characteristics and schematic classification upto class (Ruppert and Barnes, 1994)	2	Piyali Pakhira
	7	Nematoda : General characteristics and Schematic classification upto class (Ruppert and Barnes,1994)	2	Piyali Pakhira

	8	Annelida: General characteristics and schematic classification upto class (Ruppert and Barnes, 1994), Metamerism in Annelida, Nephridia: Structure and Function	4	Palas Kanti Manna
	9	Arthropoda: General characteristics and schematic classification upto class (Ruppert & Barnes, 1994), Vision In Insects, Metamorphosis in Lepidopteran insect	6	Palas Kanti Manna
	10	Onychophora: Evolutionary Significance	2	Palas Kanti Manna
	11	Mollusca: General characteristics and schematic Classification upto class (Ruppert and Barnes, 1994), Modification of foot, Nervous system and torsion in Gastropods	5	Dr. Eureka Mondal
	12	Echinodermata General characteristics and Schematic classification upto class (Ruppert and Barnes, 1994), Water Vascular System of starfish.	4	Dr. Payel Bhattacharjee
	13	Hemichordata General characteristics phylum Hemichordata, Relationship of non-chordates and chordates	3	Dr. Payel Bhattacharjee

Internal

Paper	Syllabus (Unit Wise)	Assigned Teacher	☎ & ✉
ZOOL1021 [Minor/DS Course (Core)] Non-Chordates	Basics of Animal Classification Annelida: Arthropoda: Onychophora:	Palas Kanti Manna	9732381772, 9382113782 palasmanna84@gmail.com
	Protista and Metazoa Protozoa: Porifera: Mollusca:	Dr. Eureka Mondal	8250656417, 9476440223 mondal.eureka87@gmail.com/ eurekaugb@gmail.com/
	Cnidaria: Ctenophora: Echinodermata Hemichordata	Dr Payel Bhattachrjee	9477159440/9051141362/payel.iicb@gmail.com/ drpayelb.rmz@gmail.com
	Platyhelminthes Nematoda	Piyali Pakhira	8250576414, 7718534071 tukupakhira@gmail.com
	Total internal marks 5		

Paper Code and Subject	Unit	TOPICS (Credits:1)	TOTAL NO. LECTURES (15)	Assign Teacher
ZOOL1021 [Minor/DS Course (Core)] Non-Chordates [Practical]	1	Spot Identification: Either from museum specimen or from photograph Group I: <i>Amoeba</i> , <i>Euglena</i> , <i>Paramecium</i> , <i>Sycon</i> , <i>Obelia</i> , <i>Physalia</i> , <i>Aurelia</i> , <i>Taeniasolium</i> , <i>Ascaris lumbricoides</i> , <i>Nereis</i> , <i>Hirudinaria</i> Group II: <i>Macrobrachium</i> , <i>Scylla</i> , <i>Carcinoscorpius</i> , <i>Trigoniulus</i> , <i>Chiton</i> , <i>Patella</i> , <i>Loligo</i> , <i>Sepia</i> , <i>Pentaceros</i> , <i>Ophiura</i> , <i>Echinus</i> , <i>Balanoglossus</i>	7	Piyali Pakhira
	2	Dissection–Digestive system and nervous system of <i>Periplaneta</i> sp.	4	Piyali Pakhira
	3	Mounting of the following specimens—Mouth parts of cockroach, Whole Mount: Mosquito.	2	Piyali Pakhira
	4	Temporary staining and mounting of any zooplankton	2	Piyali Pakhira

Internal

Paper	Syllabus(UnitWise)	Assign Teacher	Contact Number & Mailid	Marks Weightage
ZOOL1021 [Minor/DS Course (Core)] Non-Chordates [Practical]	Spot Identification: Either from museum specimen or from photograph	Piyali Pakhira		5
	Group I: <i>Amoeba</i> , <i>Euglena</i> , <i>Paramecium</i> , <i>Sycon</i> , <i>Obelia</i> , <i>Physalia</i> , <i>Aurelia</i> , <i>Taenia solium</i> , <i>Ascaris lumbricoides</i> , <i>Nereis</i> , <i>Hirudinaria</i>			
	Group II: <i>Macrobrachium</i> , <i>Scylla</i> , <i>Carcinoscorpius</i> , <i>Trigoniulus</i> , <i>Chiton</i> , <i>Patella</i> , <i>Loligo</i> , <i>Sepia</i> , <i>Pentaceros</i> , <i>Ophiura</i> , <i>Echinus</i> , <i>Balanoglossus</i>			
	Dissection– Digestive system and nervous system of <i>Periplaneta</i> sp.			
	Mounting of the following specimens—Mouthparts of cockroach, Whole Mount: Mosquito.			
	Temporary staining and mounting of any zooplankton			
Total Marks				5

Skill Enhancement Course

Objectives of the Course:

Vermiculture is the study Commercial application of technologies that utilize earthworms for degrading waste organic materials for sanitation and agricultural re-use. Earthworms degrade organic waste materials and convert them into vermicompost. The main objective of this course is to provide the students with knowledge of vermitechnology and its application in agriculture as well as entrepreneurship.

Course Outcomes:

1. The Course Has A Broad scope for Employability.
2. Students will gather knowledge on soil earthworms; their characteristic features, occurrence, and their influence on soil fertility and solid waste management are included.
3. Students will gather knowledge on Vermicomposting technology in respect of the global level as well as the Indian perspective.
4. Application of Vermiculture products and their benefits in agriculture practice.

Paper Code and Subject	Unit	TOPICS (Credits:2)	TOTAL NO. LECTURES (30)	Assign Teacher
(SEC-I) VERMICULTURE [Theory]	1	Earthworm Morphology and Anatomy: Taxonomic Position, external features, internal anatomy.	3	Dr. Baisakhi Saha
	2	Habitat Ecology and reproduction: Burrowers, casts, nocturnal, poikilothermic, ecological grouping, Epigeic sp., Endogenics., Anecics.	3	Dr. Baisakhi Saha
	3	Description of some important earthworm sp: <i>Eiseniafetida</i> , <i>Eudriluseugeniae</i> , <i>Lumbricus rubellus</i> .	3	Dr. Baisakhi Saha
	4	Importance Of Earthworm In Agriculture: Role Of earthworm to increase fertility of soil.	3	Dr. Baisakhi Saha
	5	Vermitechnology and Vermiculture: Definition, History At Different countries and India.	3	Dr. Baisakhi Saha
	6	Vermiculture: Methods, wormery, breeding technique, indoor outdoor culture, mono-and Polyculture And Merits and Demerits	5	Dr. Baisakhi Saha
	7	Vermicomposting Of Wastes: Different Methods, storage. Vermiwash: preparation and application	3	Dr. Baisakhi Saha
	8	Diseases and Predators/pathogen of earthworm. Maintenance Wormeries.	3	Dr. Baisakhi Saha
	9	Marketing and Future perspective: Marketing the products of Vermiculture, quality control, marketing techniques, demand study, advertisement, packing and transport, and financial support.	4	Dr. Baisakhi Saha

Internal

Paper	Syllabus (Unit Wise)	Assign Teacher	Contact Number & Mail id	Marks Weightage
(SEC-1) VERMICULTURE	Unit 1-9	Dr. Baisakhi Saha	9433315086, 9477549801 baisakhisaha008@gmail.com, baisakhisaha08@gmail.com	10

Paper Code and Subject	Unit	TOPICS (Credits:1)	Marks Weightage	Assign Teacher
(SEC-1) VERMICULTURE [Practical]	1	Visit pharmlab and report submission	6	Dr. Baisakhi Saha
	2	Viva-voce	4	Dr. Baisakhi Saha

Skill Enhancement Course

Objectives of the Course

This Skill Enhancement Course aims to enlighten students on the health status of patients with simple diagnostic tests and evaluations. This course will help to make students self-sufficient in future. They are expected to be adept in laboratory techniques.

Course Outcomes:

After completion of course, students will be able to:

- Get complete knowledge of honeybees and their different casts.
- Get knowledge about artificial beehive and their uses for apiculture.
- To know about different diseases on enemies of honeybees.
- Able to know the techniques of honey extraction and handling of honeybees.
- Get a brief idea about entrepreneurship in Apiculture.

Paper Code and Subject	Unit	TOPICS(Credits:3)	TOTAL NO. LECTURES (45)	Assign Teacher
	1	History and importance of apiculture; the systematic position of bees; different species of common honey bees and their Description	5	Palas Kanti Manna
	2	The life cycle of the honeybee; general morphology and anatomy of different castes of honeybees; emphasis on mouth parts; Non-Apis bee species.	6	Piyali Pakhira
	3	Structure Of Different Beehives Or Honeycomb; colonial Organization; bee language and communications.	4	Dr. Eureka Mondal
	4	Methods Of Keeping: Indigenous methods and its Disadvantages	3	Piyali Pakhira
	5	Apiary: selection of good apiary site; selection of good bee.	3	Dr. Eureka Mondal
	6	Modern methods of Apiculture: Discovery of the movable hive; Langstroth and Newton hive; description of modern movable beehive; accessory equipment used in bee keeping industry. Extraction of honey; important points regarding the handling of bees.	6	Palas Kanti Manna
	7	Products of Apiculture: Honey, wax, etc., chemical Compositions; use; other products like propolis, royal jelly, apitoxin, etc.	4	Dr. Eureka Mondal
	8	Diseases And Enemies: parasitic diseases; other enemies	4	Piyali Pakhira
	9	Types of Beekeeping, economics: Stationary and migratory; Economics Of Beekeeping, the position of this industry from the Indian perspective.	5	Palas Kanti Manna
	10	Entrepreneurship in Apiculture: Beekeeping as a source of employment and livelihood; the role of KVIC for beekeeping in India; proposal preparation for funding.	5	Piyali Pakhira

Internal

Paper	Syllabus (Unit Wise)	Assigned Teacher	☎ & ✉
ZOOL1051 [Skill Enhancement Course (SEC)] Apiculture	1,6,9	Palas Kanti Manna	9732381772, 9382113782 palasmanna84@gmail.com
	3,5,7	Dr. Eureka Mondal	8250656417, 9476440223 mondal.eureka87@gmail.com/ eurekaugb@gmail.com/
	2,4,8,10	Piyali Pakhira	8250576414, 7718534071 tukupakhira@gmail.com
	Total internal marks 10		

