

## **DEPARTMENT OF ZOOLOGY**

### **BSC (Hons.) Zoology**

#### *Category-I*

#### **CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE**

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
<b>Nonchordata – Protists to Pseudocoelomates</b>	<b>4</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>Class X II pass with Biology as one of the papers in Class XII</b>	<b>-</b>

#### **Learning Objectives**

The course would provide an insight to the learner about the existence of different life forms on the earth and appreciate the diversity of animal life. It will help the students to understand the features of non-chordates and their systematic organization based on evolutionary relationships, structural and functional affinities. The course will also make the students aware about the characteristic morphological and anatomical features of diverse animals; the economic, ecological, and medical significance of various animals in human life; and will create interest among them to explore the animal diversity in nature.

#### **Learning outcomes**

Upon completion of the course, students should be able to:

- Learn about the importance of systematics, taxonomy, and structural organization of non-chordates.
- Appreciate the diversity of non-chordates living in varied habits and habitats
- Understand evolutionary history and relationships of different non-chordates through functional and structural affinities.
- Critically analyse the organization, complexity and characteristic features of nonchordates.
- Recognize the life functions and the ecological roles of the animals belonging to different phyla.
- Enhance collaborative learning and communication skills through practical sessions, teamwork, group discussions, assignments, and projects.

#### **SYLLABUS OF DSC-1**

##### **Unit I: Introduction to Non-chordates (2 Hours)**

General characteristics of non-chordates and basis of classification.

**Unit II: Protista (07 Hours)**

General characteristics and classification; Life cycle of *Plasmodium vivax*; Locomotion and reproduction in Protista.

**Unit III: Porifera (05 Hours)**

Introduction to Parazoa; General characteristics and classification; Canal system in sponges.

**Unit IV: Cnidaria and Ctenophora (8 Hours)**

Introduction to Metazoa; General characteristics and classification; Polymorphism in Cnidaria; Corals and coral reefs.

**Unit V: Platyhelminthes and Nemathelminthes (8 Hours)**

General characteristics and classification; Parasitic adaptations of Helminthes; Life cycle of *Taenia solium* and *Ascaris lumbricoides*.

Note: Outline classification up to classes to be followed from “Ruppert, Fox and Barnes (2004). Invertebrate Zoology: A Functional Evolutionary Approach”. VII Edition, Cengage Learning, India

**Practical component**

1. Study of whole mount of Euglena, Amoeba, Noctiluca, Paramecium, Binary fission in Paramecium and Conjugation in Paramecium.
2. Examination of pond water collected from different places to observe diversity in Protista.
3. Study of Sycon, Hyalonema, Euplectella, Spongilla, T.S. of Sycon, L.S. of Sycon.
4. Study of *Obelia*, *Physalia*, *Millepora*, *Aurelia*, *Tubipora*, *Corallium*, *Alcyonium*, *Gorgonia*, *Metridium/Adamsia*, *Pennatula*, *Fungia*, *Meandrina*, *Madrepora*.
5. Specimen/slide of any one Ctenophore.
6. Study of adult *Fasciola hepatica*, *Taenia solium* and their life stages (Slides/microphotographs).
7. Study of adult *Ascaris lumbricoides* and its life stages (Slides/microphotographs).
8. To submit a Project Report on the life cycle of any one parasite or pathogen/corals/coral reefs.
9. Examination of soil samples collected from different places to observe diversity in nematodes.

**Essential readings**

1. Ruppert, Fox and Barnes (2004). Invertebrate Zoology. VII Edition, Cengage Learning, India.
2. Pechenik, J. A. (2015). Biology of the Invertebrates. VII Edition, McGraw-Hill Education.
3. Barnes, R.S.K., Calow, P., Olive, P.J.W., Golding, D.W. and Spicer, J.I. (2002). The Invertebrates: A New Synthesis. III Edition, Blackwell Science.