

DEPARTMENT OF ZOOLOGY				CLASS: I B.Sc. Zoology				
Semester	Course Type	Course Code	Course Title	Credits	Contact Hours/week	CIA	Ext	Total
I	Core	20U1ZMC1	Invertebrata – I	3	3	25	75	100

Course Objectives:

1. To understand the concept and systematic classification of animal kingdom.
2. To identify the animals from Protista to Platyhelminthes and to recognize their distinguishing features.
3. To appraise the diversity of animals in a phylogenetic context.
4. To understand how different body designs solve biological problems related to physiological and environmental challenges.
5. To develop an appreciation for the role of invertebrates in biological communities, ecological interactions, and conservation problems.

Unit-I: Classification

Concept of five kingdom classification of life. Introduction to Animal kingdom – Systems of classification & nomenclature - Levels of organization - Types of symmetry.

Unit-II: Protista

Introduction to Protista, General characters & Classification (up to class) of Protista with examples.

Type study: *Paramecium*

General topics: Protozoan parasites, Life Cycle of *Plasmodium*, Locomotion & Nutrition in Protozoa.

Unit-III: Porifera

Characters & classification (up to class) of Porifera with examples.

Type study: *Leucosolenia*

General topics: Canal system in sponges.

Unit-IV: Coelenterata

Characters & classification (up to class) of Coelenterata with examples – Salient features of *Ctenophora*.

Type study: Obelia Colony

General topics: Polymorphism in Coelenterata, Diversity (Types) of corals, Structure of coral polyp & coral reefs.

Unit-V: Platyhelminthes

Characters & classification (up to class) of Platyhelminthes with examples.

Type study: Liver fluke

General topics: Parasitic adaptation in helminthic worms.

Books for Study

1. Nair N.C, Leelavathy S, Soundara Pandian N, Murugan T and Arumugam N, 2017. *A Text Book of Invertebrates*, Saras Publication, Nagercoil.
2. Nair N.C, Thangamani A, Leelavathy S, Prasanakumar S, Soundrapandian N, Murugan T, Narayanan L.M and Arumugam N, 2017. *Animal diversity (Invertebrata & Chordata)*, Saras Publication, Nagarcoil.

3. Jordan E.L and Verma P.S, 2009. *Invertebrate Zoology*, S. Chand & Co, New Delhi.
4. Kotpal R.L, 2017. *Modern text book of Zoology: Invertebrate*, Rastogi Publication, Meerut.

Books for References

1. Barnes R.D, 2006. *Invertebrate Zoology* (1982) VIIth Edition, Holt Saunders International Edition.
2. EkambaranathaAyyar and Ananthakrishnan T.N. (Recent Edition). *Manual of Zoology Vol-I, Part I &II*, S. Viswanathan Pvt. Ltd. Chennai.
3. Kotpal R.L, Agarwal S.K and Khetarpal, R.P, 1990. *Invertebrates*, Rastogi Publications, Meerut.
4. Anderson D.T, 2001. *Invertebrate Zoology*, Oxford University Press, New Delhi.
5. Barrington E.J.W, 1967. *Invertebrate Structure and Functions*, English Language Book Society.
6. Hyman L.H, 1940-1967. *The Invertebrates (6 vols)*, McGraw-Hill Companies Inc. NY.

Web Resources

1. <https://www.nwf.org/Educational-Resources/Wildlife-Guide/Invertebrates>
2. <https://biologydictionary.net/invertebrate/>
3. <https://basicbiology.net/animal/invertebrates>
4. <https://www.khanacademy.org/science/biology/crash-course-bio-ecology/crash-course-biology-science/v/crash-course-biology-121>
5. <https://www.khanacademy.org/science/biology/crash-course-bio-ecology/crash-course-biology-science/v/crash-course-biology-122>

Pedagogy

Chalk and Talk, PPT, group discussion, seminar, interaction, quiz, tutorial and virtual labs.

Course Learning Outcomes:

	CLO Statement	Knowledge level
CLO-1	Understand the diversity and basic taxonomy of Animal kingdom.	K1
CLO-2	Describe the general characters and outline classification from Protista to Platyhelminthes.	K2
CLO-3	Apply the knowledge to identify the fauna based on their unique characters.	K3
CLO-4	Analyse the importance and adaptation of the fauna in their habitat.	K4
CLO-5	Examine the role of Invertebrates in biological communities and ecological interactions.	K4

Mapping with Programme Specific Outcomes:

	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5	PSO-6	PSO-7	PSO-8
CLO-1	1	1		2			2	
CLO-2	1	3	2	3			3	
CLO-3	1	3	3	2			2	
CLO-4	1	2	3	3			3	1
CLO-5	1	2	3	3			2	

3- Advance application; 2- Intermediate level; 1- Basic level

Mapping with Programme Outcomes:

	PO-1	PO-2	PO-3	PO-4	PO-5
CLO-1	1			2	
CLO-2	2	2		2	
CLO-3	1	2	2	2	2
CLO-4	1	2	1	2	1
CLO-5	2	2	1	3	3

3- Advance application; 2- Intermediate level; 1- Basic level

LESSON PLAN (Total hours: 45)

Unit	Description	Staff Name	Hours	Mode
I	Concept of five kingdom classification of life		2	Lecture
	Introduction to Animal kingdom		1	Interaction
	Systems of classification & nomenclature		2	Chalk and Talk
	Levels of organization		2	Group Discussion
	Types of symmetry		2	PPT
II	Introduction and General characters of Protista to Protista		1	Lecture Group Discussion
	Classification (up to class) of Protista with examples.		1	Interaction
	Type study: <i>Paramecium</i>		2	Chalk and Talk
	Protozoan parasites		1	Interaction
	Life Cycle of <i>Plasmodium</i>		2	PPT
	Locomotion & Nutrition in Protozoa		2	Interaction
III	General Characters of Porifera		2	Group Discussion
	Classification (up to class) of Porifera with examples		2	Interaction
	Type study: <i>Leucosolenia</i>		3	Chalk and Talk
	Canal system in sponges		2	PPT
IV	General Characters of Coelenterata		1	Group Discussion
	Classification (up to class) of Coelenterata with examples		1	Interaction
	Salient features of <i>Ctenophora</i>		1	Lecture
	Type study: <i>Obelia</i> Colony		2	Chalk and Talk
	Polymorphism in Coelenterata		1	Interaction
	Diversity (Types) of corals		1	PPT
	Structure of coral polyp & coral reefs		2	Interaction
V	General Characters of Platyhelminthes		1	Group Discussion
	Classification (up to class) of Platyhelminthes with examples		2	Interaction
	Type study: Liver fluke		4	Chalk and Talk
	Parasitic adaptation in helminthic worms		2	PPT

Course designers: Dr. B. Latha and Dr. C. Selvakumar