

1ST SEMESTER SYLLABUS (HONOURS)

SEM-I						
Paper Code	Course	Credit	Credit Distribution (L+T+P)	End Sem Marks	Internal Marks	Total Marks
ZOO-101H	CC-1: Non-chordates I: Protista to Pseudocoelomates	6	4+0+2	60(Theo)+20(Pract)	20	100
ZOO-102H	CC-2: Principles of Ecology	6	4+0+2	60(Theo)+20(Pract)	20	100
ZOO-103HR	GE-1: Animal Diversity	6	4+0+2	60(Theo)+20(Pract)	20	100
COMM-104HR	AEC: AECC-1: English/Hind/MIL (Communication)	2	2+0+0	50	-	50
Total		20	20	290	60	350

CC-1: NON-CHORDATES I: PROTISTS TO PSEUDOCOELOMATES

(CREDITS 4)

THEORY

Unit 1: Protista, Parazoa and Metazoa

19 Lectures

General characteristics and Classification up to classes

Amoeba and *Paramecium*

Life cycle and pathogenicity of and *Entamoeba histolytica*

Locomotion in Protista

Evolution of symmetry and segmentation of Metazoa

Unit 2: Porifera

7

General characteristics and Classification up to classes

Canal system

Unit 3: Cnidaria

12

General characteristics and Classification up to classes

Polymorphism in Cnidaria

Corals and coral reefs

Unit 4: Ctenophora

4

General characteristics and Evolutionary significance

Unit 5: Platyhelminthes

10

General characteristics and Classification up to classes

Life cycle and pathogenicity of *Fasciola hepatica*

Unit 6: Nematelminthes

8

General characteristics and Classification up to classes

Life cycle, and pathogenicity of *Ascaris lumbricoides*

Parasitic adaptations in helminthes

Note: Classification to be followed from "Barnes, R.D. (1982). *Invertebrate Zoology*, V Edition"

PRACTICALS

(CREDITS 2)

1. Study of whole mount of *Euglena*, *Amoeba* and *Paramecium*, Binary fission and Conjugation in *Paramecium*
2. Examination of pond water collected from different places for diversity in protista
3. Study of *Sycon* (T.S. and L.S.), *Hyalonema*, *Euplectella*, *Spongilla*
4. Study of *Obelia*, *Physalia*, *Millepora*, *Aurelia*, *Tubipora*, *Corallium*, *Alcyonium*, *Gorgonia*, *Metridium*, *Pennatula*, *Fungia*, *Meandrina*, *Madrepora*
5. One specimen/slide of any ctenophore
6. To submit a Project Report on any related topic on life cycles/coral/ coral reefs.

Note: Classification to be followed from “Ruppert and Barnes (2006) *Invertebrate Zoology*, 8th edition, Holt Saunders International Edition”

SUGGESTED READINGS

- Ruppert and Barnes, R.D. (2006). *Invertebrate Zoology*, VIII Edition. Holt Saunders International Edition.
- 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
- Barrington, E.J.W. (1979). *Invertebrate Structure and Functions*. II Edition, E.L.B.S. and Nelson

CC-2: PRINCIPLES OF ECOLOGY

THEORY

(CREDITS 4)

Unit 1: Introduction to Ecology

6 Lectures

Autecology and synecology, Levels of organization, Laws of limiting factors, Study of physical factors

Unit 2: Population

24

Unique and group attributes of population: Density, natality, mortality, life tables, fecundity tables, survivorship curves, age ratio, sex ratio, dispersal and dispersion Exponential and logistic growth, equation and patterns, r and K strategies Population regulation - density-dependent and independent factors

Population interactions

Unit 3: Community

12

Community characteristics: species richness, dominance, diversity, abundance, vertical stratification, Ecotone and edge effect; Ecological succession with one example

Unit 4: Ecosystem

14

Types of ecosystems with one example in detail, Food chain: Detritus and grazing food chains, Linear and Y-shaped food chains, Food web, Energy flow through the ecosystem, Ecological pyramids and Ecological efficiencies

Nutrient and biogeochemical cycle with one example of Nitrogen cycle

Unit 5: Applied Ecology

4

Ecology in Wildlife Conservation and Management

PRACTICALS

(CREDITS

2)

1. Study of life tables and plotting of survivorship curves of different types from the hypothetical/real data provided
2. Determination of population density in a natural/hypothetical community by quadrat method and calculation of Shannon-Weiner diversity index for the same community
3. Study of an aquatic ecosystem: Phytoplankton and zooplankton, Measurement of area, temperature, turbidity/penetration of light, determination of pH, and Dissolved Oxygen content (Winkler's method), Chemical Oxygen Demand and free CO₂

SUGGESTED READINGS

- Colinvax, P. A. (1993). Ecology. II Edition. Wiley, John and Sons, Inc.
- Krebs, C. J. (2001). Ecology. VI Edition. Benjamin Cummings.
- Odum, E.P., (2008). Fundamentals of Ecology. Indian Edition. Brooks/Cole
- Robert Leo Smith Ecology and field biology Harper and Row publisher
- Ricklefs, R.E., (2000). Ecology. V Edition. Chiron Pres.

GE 1: ANIMAL DIVERSITY

THEORY

(CREDITS 4)

Unit 1: Kingdom Protista	4 Lectures
General characters and classification up to classes; Locomotory Organelles and locomotion in Protozoa	
Unit 2: Phylum Porifera	3
General characters and classification up to classes; Canal System in <i>Sycon</i>	
Unit 3: Phylum Cnidaria	3
General characters and classification up to classes; Polymorphism in Hydrozoa	
Unit 4: Phylum Platyhelminthes	3
General characters and classification up to classes; Life history of <i>Taenia solium</i>	
Unit 5: Phylum Nematelminthes	5
General characters and classification up to classes; Life history of <i>Ascaris lumbricoides</i>	
Unit 6: Phylum Annelida	3
General characters and classification up to classes; Metamerism in Annelida	
Unit 7: Phylum Arthropoda	5
General characters and classification up to classes; Metamorphosis in Insects	
Unit 8: Phylum Mollusca	4
General characters and classification up to classes	
Unit 9: Phylum Echinodermata	4
General characters and classification up to classes; Water-vascular system in Asteroidea	
Unit 10: Protochordates	2
General features of Protochordata	
Unit 11: Agnatha	2
General features of Agnatha and classification of cyclostomes up to classes	
Unit 12: Pisces	4
General features and Classification up to orders	
Unit 13: Amphibia	4
General features and Classification up to orders	
Unit 14: Reptiles	4
General features and Classification up to orders; Poisonous and non-poisonous snakes	
Unit 15: Aves	5
General features and Classification up to orders	
Unit 17: Mammals	5
Classification up to orders	
Note: Classification of Unit 1-9 to be followed from "Barnes, R.D. (1982). <i>Invertebrate Zoology</i> , V Edition"	

PRACTICAL

(CREDITS 2)

1. Study of the following specimens:
2. *Amoeba*, *Paramecium*, *Sycon*, and *Obelia*, *Tubipora*, *Metridium*, *Taenia solium*, Male and female *Ascaris lumbricoides*, *Pheretima*, *Hirudinaria*, *Cancer*, *Limulus*, *Julus*, *Periplaneta*, *Apis*, *Dentalium*, *Pila*, *Loligo*, *Octopus*, *Echinus*, *Cucumaria* and *Balanoglossus*, *Herdmania*, *Petromyzon*, *Torpedo*, *Labeo*, *Ichthyophis/ Salamandra*, *Bufo*, *Chelone*, *Hemidactylus*, *Vipera*, *Naja*, Any three common birds from different orders Bat, *Funambulus*
Study of the following permanent slides:
3. Study of life history stages of *Taenia*, T.S. of Male and female *Ascaris*

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.

SUGGESTED READINGS

- Ruppert and Barnes, R.D. (2006). *Invertebrate Zoology*, VIII Edition. Holt Saunders International Edition.
- 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
- Young, J. Z. (2004). *The Life of Vertebrates*. III Edition. Oxford university press.
- Pough H. *Vertebrate life*, VIII Edition, Pearson International.
- Hall B.K. and Hallgrimsson B. (2008). *Strickberger's Evolution*. IV Edition. Jones and Bartlett Publishers Inc.