

Module Code:	Zool - 101
Module title:	Zoology-I (Invertebrate Diversity)
Name of Scheme:	BS Chemistry (4 Years)
Semester :	1 st
Module Type:	General
Module Rating:	2 Credits

1. Introduction of the course:

The course is organized to provide an adequate knowledge about classification of organisms; definition, concept, evolutionary relationships and tree diagrams; patterns of organization and biodiversity.

2. Course Objectives:

The course is designed:

1. To introduce students about the key introductory concepts of classification of organisms and their evolutionary relationships.

3. Course Contents

INVERTEBRATE DIVERSITY:

Classification of organisms; definition, concept, evolutionary relationships and tree diagrams; patterns of organization. Biodiversity.

Animal-Like Protists: The Protozoa:

Evolutionary perspective; life within a single plasma membrane; symbiotic life-styles. Protozoan taxonomy: (up to phyla, subphyla and super classes, wherever applicable). Pseudopodia and amoeboid locomotion; cilia and other pellicular structures; symbiotic ciliates; further phylogenetic considerations.

Multicellular and Tissue Levels of Organization:

Evolutionary perspective: origins of multicellularity; animal origins. Phylum porifera: cell types, and skeletons; body forms; maintenance functions. Phylum cnidaria (coelenterata) the body wall and nematocysts; alternation of generations; maintenance functions; reproduction and classification up to class.

Phylum ctenophora; further phylogenetic considerations.

The Triploblastic, Acoelomate Body Plan:

Evolutionary perspective; phylum platyhelminthes: classification up to class; the free-living flatworms and the tapeworms; phylum nemertea; phylum gastrotricha; further phylogenetic considerations.

The Pseudocoelomate Body Plan: Aschelminths:

BS (Chemistry) 4Year Program

Evolutionary perspective; general characteristics; classification up to phyla; Some important nematode parasites of humans; further phylogenetic considerations.

Molluscan Success:

Evolutionary perspective: relationships to other animals; origin of the coelom; molluscan characteristics; classification up to class. Diversity in gastropods, bivalves and cephalopods; further phylogenetic considerations.

Annelida: The Metameric Body Form:

Evolutionary perspective: metamerism and tagmatization; classification up to class. External structure and locomotion, feeding.

The Arthropods:

Evolutionary perspective: classification and relationships to other animals; classification up to class.

The Hexapods and Myriapods:

Insect and humans; further phylogenetic considerations.

4. **Teaching-learning Strategies**

1. Lectures
2. Group Discussion
3. Laboratory work
4. Seminar/ Workshop

5. **Learning Outcome:**

Students are expected to get acquire the basic knowledge of classification of organisms and their evolutionary relationships.

6. **Assessment Strategies:**

1. Lecture Based Examination (Objective and Subjective)
2. Assignments
3. Class discussion
4. Quiz
5. Tests

7. **Recommended Readings:**

1. Campbell, N.A., 2002. Biology 6th Ed. Menlo Park, California: Benjamin/Cummings Publishing Company, Inc.
2. Hickman, C.P., Roberts, L.S. and Larson, A., 2004. Integrated Principles of Zoology, 11th Edition (International). Singapore: McGraw Hill.
3. Kent, G.C. and Miller, S., 2001. Comparative Anatomy of Vertebrates. New York: McGraw Hill.
4. Miller, S.A. and Harley, J.B., 1999 & 2002. Zoology, 4th & 5th Edition (International). Singapore: McGraw Hill.
5. Pechenik, J.A., 2000. Biology of Invertebrates, 4th Edition (International). Singapore: McGraw Hill.

Module Code:	Zool - 102
Module title:	Zoology – I (Zoology Lab)
Name of Scheme:	BS Chemistry (4 Years)
Semester :	1 st
Module Type:	General
Module Rating:	1 Credits

1. **Introduction of the course:**

The course is organized to provide an adequate knowledge about classification of organisms; definition, concept, evolutionary relationships and tree diagrams; patterns of organization and biodiversity.

2. **Course Objectives:**

The course is designed:

1. To introduce students about the key introductory concepts of classification of organisms and their evolutionary relationships.

3. **Course Contents:**

1. Study of Euglena, Amoeba, Entamoeba, Plasmodium, Trypanosoma, Paramecium as representative of animal like protists. (Prepared slides).
2. Study of sponges and their various body forms.
3. Study of principal representative classes of phylum Coelentrata.
4. Study of principal representative classes of phylum Platyhelminthes.
5. Study of representative of phylum Rotifera, phylum Nematoda.

BS (Chemistry) 4Year Program

6. Study of principal representative classes of phylum Mollusca.
7. Study of principal representative classes of phylum Annelida.
8. Study of principal representative classes of groups of phylum Arthropoda.
9. Brief notes on medical/economic importance of the following: Silkworm, Citrus butterfly.

4. **Teaching-learning Strategies**

1. Lectures
2. Group Discussion
3. Laboratory work
4. Seminar/ Workshop

5. **Learning Outcome:**

1. Students are expected to get acquire the basic knowledge of classification of organisms and their evolutionary relationships.

6. **Assessment Strategies:**

1. Lecture Based Examination (Objective and Subjective)
2. Assignments
3. Class discussion
4. Quiz
5. Tests

7. **Recommended Readings:**

1. Campbell, N.A., 2002. Biology 6th Ed. Menlo Park, California: Benjamin/Cummings Publishing Company, Inc.
2. Hickman, C.P., Roberts, L.S. and Larson, A., 2004. Integrated Principles of Zoology, 11th Edition (International). Singapore: McGraw Hill.
3. Kent, G.C. and Miller, S., 2001. Comparative Anatomy of Vertebrates. New York: McGraw Hill.
4. Miller, S.A. and Harley, J.B., 1999 & 2002. Zoology, 4th & 5th Edition (International). Singapore: McGraw Hill.
5. Pechenik, J.A., 2000. Biology of Invertebrates, 4th Edition (International). Singapore: McGraw Hill.