

SEMESTER 1ST
MAJOR COURSE
ZOL122J: ZOOLOGY (INTRODUCTION TO SYSTEMATICS & NON-CHORDATES)

Credits: Theory=4, Practical=2

Course objective: This course is desired to give a learner the fundamental understanding of relevance of taxonomy and the diversity of non-chordate phyla with emphasis on key characteristics and classification so as to lay a strong foundation in understanding diversity of animal life. It will enlightens how each group of organisms establish themselves in the environment with their special characteristics.

Learning outcome: At the completion of this course, a student will be able to:

- Learn basic taxonomy skills and demonstrate classification and identification abilities of non-chordates;
- Comprehend and explain evolutionary relationship among the various non-chordate groups;
- Get sensitized with the relevance of animal diversity in understanding life from a broader perspective;
- The learner will utilize the knowledge gained from these creatures for the economy and human welfare.

Theory: (4 Credits)

Unit I: Animal Taxonomy

- 1.1 Introduction to systematics: terms & definitions
- 1.2 Utility and strategy of systematics with emphasis on α , β & γ taxonomy
- 1.3 Taxonomic characters : introduction & types
- 1.4 Outline classification of kingdom animalia

Unit II: Protozoa, Porifera and Coelentrata

- 2.1 General characters and classification of protozoa, porifera & coelentrata upto class level
- 2.2 Locomotion & nutrition in protozoa
- 2.3 Canal system & skeletal elements in porifera
- 2.4 Polymorphism in coelenterates

Unit III: Platyhelminthes, Nematoda & Annelida

- 3.1 General characters and classification of platyhelminthes, nematoda & annelida upto class level
- 3.2 Morphology, life cycle and pathogenicity of *Taenia solium*
- 3.3 Morphology, life cycle & pathogenicity of *Ascaris lumbricoides*
- 3.4 Filter feeding in polychaetes

Unit IV: Arthropoda, Mollusca & Echinodermata

- 4.1 General Characters and classification of arthropoda, mollusca & echinodermata upto class level
- 4.2 Mouth parts in insects & insect metamorphosis
- 4.3 Modification of foot in molluscs & torsion in gastropods
- 4.4 Water Vascular system & larval forms in echinodermata

Practical's: (2 Credits)

Section I:

- 1.1 Slide study of protozoa: paramecium, euglena, amoeba, entamoeba, trypanosoma, leishmania & plasmodium
- 1.2 Museum study of porifera: sycon, spongilla euplectella, hyalonema, euspongi; coelenterate: obelia, hydra, & physalia
- 1.3 Museum study of helminths: taenia, fasciola, ascaris, trichuris; annelida: pheritima & hirudinea
- 1.4 Dissection of earthworm/ neries to expose its nerve ring

Section II:

- 2.1 Museum study of arthropoda: palaemon, julus, scolopendra, apis, wasp; mollusca: octopus, chiton, pila, unio, Aplysia & echinodermata: starfish, echinus, antedon & holothuria
- 2.2 Preparation of temporary mount of insect mouth parts & sting apparatus of honey bee
- 2.3 Dissection of sepia/ loligo to expose its nervous system
- 2.4 Dissection of starfish to expose its water vascular system

Suggested books:

1. Invertebrate Structure and function by E.J.W Barrington Nelson, London Publishers.
2. Invertebrate Zoology by P.S Dhami and J.K Dhami. R-Chand & Company
3. Invertebrate Zoology by Ruppert and Barnes. Holt Saunders Publishers
4. Modern Textbook of Zoology: Invertebrates by R.L Kotpal. Rastogi Publishers
5. Invertebrate Zoology by E.L Jordan and P.S Verma. S. Chand Publishers