Course IV: Practical Zoology (BSCZO104)

Objectives:

1. Describe and explain the basic principles of animal classification, form and function among Invertebrate phyla.
2. Identify and classify the main groups of invertebrates through the study of available museum specimens/model/posters.
4. To study the microscopic animals and larva of different invertebrate phyla through the permanent slide/whole mount observation.
5. To study the cytological experiments i.e. cell division stages
6. To develop practical understanding on Mendelian and non Mendelian hereditary experiments.

Syllabus:

UNIT SCHEDULE

Block I: Museum Specimen study

Unit 1: Protozoa (study of Permanent slides)
Unit 2: Porifera (Study of permanent slides and Museum specimens)
Unit 3: Coelenterata (Study of museum specimens and permanent slides)
Unit 4: Platyhelminthes
Unit 5: Nematoda
Unit 6: Annelida (Study of museum specimens, permanent slide and slide preparation and study)
Unit 7: Arthropoda (Museum specimens, whole mount and slide preparation)
Unit 8: Mollusca(Museum specimens, whole mount/slides and slide preparation)
Unit 9: Echinodermata (Museum specimens, whole mount/slides and slide preparation)

Block II: Experimentation

Unit 10: Dissection
Unit 11: Permanent slide preparation
Unit 12: Cytological study
Unit 13: Genetics experiment
UNIT WISE CONTENTS (BSCZO104)

Identification, systematic position up to order and general study of the following animal forms, microscopic slides / museum specimens:

Unit 1: Protozoa: Amoeba, Paramaecium, Euglena, Ceratium and Noctiluca. Plasmodium, Monocystis, Trypanosoma, Leishmania, Entamoeba and Giardia

Unit 2: Porifera: Leucosolenia, Grantia, Scypha, Hyalonema, Euplectella, Spongilla and Euspongia. L. S. and T. S. of Scypha / Grantia

Unit 3: Coelenterata: Medusa of Obelia, larval stages of Aurelia, Physalia, Porpita, Vellela, Tubipora, Millepora, Aurelia, Gorgonium, Pennatula, Alcyonium, Adamsia

Unit 4: Platyhelminthes: Dugesia, Fasciola and Taenia. Transverse sections of Fasciola and Taenia, mature and gravid proglottids of Taenia, developmental stages of Fasciola and Taenia

Unit 5: Nematoda: Ascaris, Ancylostoma, Dracunculus, Wuchereria, Trichinella, Schistosoma and Enterobius

Unit 6: Annelida: Nereis, Heteronereis, Aphrodite, Arenicola, Metaphire, Pontobdella, and Hirudinaria. Transverse sections of Nereis and Hirudinaria, Trochophore larva of Nereis, Parapodium of Nereis and Heteronereis


Unit 8: Mollusca Chiton, Dentalium, Sepia, Patella, Pila, Turbinella, Aplysia, Slug, Snail, Mytilus, Octopus. Transverse sections of Lamellidens and Glochidium larva

Unit 9: Enchinodermata: Pentaceros, Asterias, Ophiocystis, Echinus, Holothuria and Antedon. Pedicellariae of Star fish

Unit 10: Biology/General study Study of living animals: Amoeba, Paramaecium, Euglena, Hydra and rectal ciliates

Unit 11: Permanent slide preparation/ Dissections
Permanent preparations / Minor dissections of the following:
Protozoa: Paramecium
Porifera: Sponge spicules and gemmules.
Coelenterata: Obelia colony, Obelia medusa.
Arthropoda: Mouth parts of honey bee, butterfly, cockroach and grasshopper.
Unit 12: Cytological study
   a. Study of mitosis and meiosis using available material.
   b. Study of permanent slides showing stages of cell division, giant chromosome, ,
   mitochondria, Golgi body etc

Unit 13: Genetics experiment
   Experimentation on Mendelian and non – Mendelian inheritance, study of mutants of
   Drosophila through charts/photographs