SUBJECT ZOOLOGY

4 YEAR UG SYLLABUS_CBPBU

MINOR 1: ANIMAL DIVERSITY

Course Objectives:

Theory:

1. To form a general understanding of the diversity of the Animal Kingdom through the study of general characters of each Phylum/Class.
2. To form an outline idea of the taxonomic classification of different non-chordate phyla and chordate classes through the study of classification scheme for each Phylum/Class.
3. To form an understanding of the body plan, structural adaptations, life history, physiological processes, behaviour and evolutionary relationships in different animals through the study of special topics included in each Phylum/Class.

Practical:

1. To be able to identify common and representative specimens from different Phyla/Classes through the study of identifying characters.
2. To be able to identify the body plan and developmental stages of common non-chordates through the study of histological sections and larval forms.
3. To acquire basic skills of dissection and mounting of invertebrate specimens.

MINOR 1: ANIMAL DIVERSITY

SUBJECT-ZOOLOGY

DIFFICULTY LEVEL: 100 MODE OF INSTRUCTION: LPT

THEORY
(CREDITS 4)

Group A: Non -Chordates

Unit 1: Kingdom Protista **4**

General characters and classification up to classes; Life cycle of *Plasmodium vivax.*

Unit 2: Phylum Porifera **3**

General characters and classification up to classes; Canal System in Sycon.

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 *Taenia solium.*

Unit 5: Phylum Nematoda **5**

General characters and classification up to classes; Life history of *Ascaris lumbricoides*.

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; Vision in Arthropoda.

Unit 8: Phylum Mollusca **4**

General characters and classification up to classes; Respiration in *Pila globosa*.

Unit 9: Phylum Echinodermata **4**

General characters and classification up to classes; Water-vascular system in *Asterias*.

Group B: Chordates

Unit 1: Protochordates **2**

General features of Protochordata with examples.

Unit 2: Agnatha **2**

General features of Agnatha and classification of cyclostomes up to classes

Unit 3: Pisces **4**

General features and classification up to orders; Migration in fishes.

Unit 4: Amphibia **4**

General features and classification up to orders; Parental care.

Unit 5: Reptiles **4**

General features and classification up to orders; Poisonous and non-poisonous snakes; Dos and don'ts after snake bite.

Unit 6: Aves **5**

General features and classification up to orders; Flight adaptations in birds.

Unit 7: Mammals **5**

General features and classification up to orders; Dentition in mammals.

[Note: Classification of invertebrates to be followed from Invertebrate Zoology by Ruppert and Barnes VI edition (1987, 1994) Saunders College Pub, except for Protozoa (American Association of Protozoologist ref: Levine 1980) and Porifera (Brusca and Brusca 2002; IV edition. Invertebrate Zoology). For chordates classification from Young, J. Z. (2004), The Life of Vertebrates to be followed except fish (Talwar and Jhingran,1991)]

PRACTICAL
(CREDITS 2)

1. Identification with reasons following specimens (Preserved specimens/models/photographs as available to be used)**:**

Non-Chordates: *Amoeba*, *Paramoecium*, *Scypha*, *Aurelia*, *Metridium*, *Taenia solium*, *Ascaris lumbricoides*, *Nereis*, *Pheretima*, *Hirudinaria*, *Macrobrachium*, *Cyclops*, *Daphnia*, *Leptocoriza*, *Limlus, Julus*, *Scolopendra, Peripatus*, *Chiton*, *Achatina*, *Loligo, Octopus*, *Asterias*, *Echinus*.

Chordates*: Balanoglossus, Branchiostoma*, *Ascidia*, *Petromyzon*, *Scoliodon*, *Labeo*, *Catla*, *Channa*, *Anabus*, *Heteropneustes*, *Clarias*, *Bufo, Hyla, Chamaeleo*, *Naja*, *Columba, Cavia*.

2. Study of following Permanent Slides (Permanent slides/photographs as available to be used)**:**

CS of sponges (syconioid and leuconoid), LS of *Metridium,* CS of *Ascaris* (male & female) through gonadal region.
Larvae: trochophore, glochidium, nauplius, echinopluteus, axolotl.

3. Staining/slide preparation/mounting:
Hydra, *Obelia* colony, *Cyclops*, *Daphnia*, *Tubifex*, digestive system of cockroach, mouth parts of cockroach, Cycloid and Ctenoid scales, hyoid apparatus and pecten of fowl.

4. Key for Identification of poisonous and non-poisonous snakes.

SUGGESTED READINGS

- Barnes, R.D. (1982). Invertebrate Zoology, V 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
- 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.
- Brusca, J.G. and Brusca, C.R. (2003) Invertebrates: Second Edition. Sinauer Associates, Inc., Sunderland.
- Jhingran, V.G. (1983). Fish and fisheries of India. (Revised second edition). Hindustan Publishing Corporation. New Delhi.