SEMESTER 2nd
MINOR COURSE

ZOL222N: ZOOLOGY (INTRODUCTION TO CHORDATES)

CREDITS: THEORY: 4; PRACTICAL: 2

Course objective: *This course is designed to give a learner the fundamental understanding of the diversity of the phylum chordata with emphasis on their origin, key characteristics, classification, distribution and functioning.*

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

- *Demonstrate the identification and classification of chordates*
- *Comprehend and explain evolutionary relationship among the various chordate groups*
- *Understand the ecological distribution and evolutionary divergence of chordates*

Theory: (4 Credits)

Unit I: Origin, Classification and Distribution of Chordates

1.1 Origin & evolution of chordates
1.2 General characters of chordates
1.3. Outline classification of the phylum Chordata
1.4 Distribution of vertebrates in different Zoogeographical realms

Unit II: Protochordates and Pisces

2.1 General characters and classification of protochordates up to order level
2.2 Retrogressive metamorphosis in urochordates
2.3 General characters and classification of Pisces up to order level
2.4 Migration and osmoregulation in fishes

Unit III: Amphibians and Reptiles

3.1 General characters and classification of amphibians up to order level
3.2 Parental care in amphibians
3.3 General characters and classification of reptiles up to order level
3.4 General features of poisonous and non- poisonous snakes

Unit IV: Aves and Mammals

4.1 General characters and classification of aves up to order level
4.2 Flight adaptations in birds
4.3 General characters and classification of mammals up to order level
4.4 Adaptive radiation in mammals with reference to locomotory organs.

Practicals: (2 Credits)

Section I:

Classification and diagnostic features of museum specimens / slides belonging to following groups available in respective museums:

Protochordata-Balanoglossus, Herdmania, Branchiostoma
Pisces- Scoliodon, Labeo, Cyprinus , Shizothorax, Salmon
Amphibia- Ichthyophis, Necturus, Bufo, Hyla, Alytes, Salamandra
Reptilia- Uromastix, Vipera, Naja,
Aves – common birds from different orders
Mammalia- Bat, Funambulus, Loris, Herpestes

Section II:

Dissections: alimentary canal, cranial nerves of carp / Scoliodon, Identification of poisonous and non-poisonous snakes. Mount preparation of weberian ossicles of carp, Study of different zoogeographical realms through chart & short films. Field visits for observation and understanding of local fauna

SUGGESTED BOOKS:

1. Chordate Zoology E. L.Jordan P. S. Verm. S.Chand and company, New Delhi
2. Life of Vertebrates J. Z. Young New York Oxford University Press.
3. Text Book of Zoology Vol-11 Porker and Haswel AZTBS Publishers New Delhi
4. The Vertebrate Body Romer and Parso Saunderes Company
5. Chordate Zoology P S Dhami J K OHowu/Pradeep Publications, Jalandhar
6. Comparative Animal Physiology C.L. Proper Satish Book Enterprise Agra
7. General and Comparative Physiology Koor Prentice Hall of India Pvt. Ltd.
8. Modern Text Book of Zoology (Vertebrates) R L Kotpal Rastogi Publications
9. Animal Physiology. Mohan P Arora Himalaya Publishing House, New Delhi
10. Manual of practical Zoology Chordates P S Verma S. Chand and Company Ltd.
11. Animal Physiology Nilsen Cambridge University Press
12. Comparative Anatomy of Vertebrates K.K.Saxena and Saxena Viva Books Pvt.Ltd.
13. *Practical Zoology: Vertebrate (English, Rastogi Publications, S.S.Lal) A Manual of Practical Zoology by P. S. Verma*