

Semester 2

Major Course 2 (MJC-2)

Course Title	Credit	Credit Distribution	
		Theory	Practical
Diversity of Chordates	6	4	2

Course Outcomes: After completion of the course, the students will be able to:

CO-1: Understand different classes of chordates, level of organization and evolutionary relationship between different subphyla and classes, within and outside the phylum.

CO-2: Study about diversity in animals making students understand about their distinguishing features.

CO-3: Appreciate similarities and differences in life functions among various groups of animals in Phylum Chordata.

CO-4: Comprehend the circulatory, nervous and skeletal system of chordates.

CO-5: Know about the habit and habitat of chordates in marine, freshwater and terrestrial ecosystems.

MJC-2: Diversity of Chordates (Theory: 4 credits)		40 hrs
Unit	Topics to be covered	No. of Lectures
1	1. Introduction to Chordates General characteristics and classification (upto Order): Cephalochordata, Urochordata, Pisces, Amphibia, Reptilia, Aves, Mammals, Cyclostomata.	8
2	2. Origin and Evolution of Chordata. 3. Cephalochordata: Amphioxus. 4. Urochordata: Herdmania (including retrogressive metamorphosis). 5. Cyclostomata: Petromyzon.	10
3	6. Pisces: Migration, Osmoregulation, and accessory respiration. 7. Amphibia: Origin and Evolution; Parental care, Neoteny. 8. Reptilia: Poison and nonpoisonous snakes; Poison apparatus; biting and feeding mechanism in snakes.	12
4	9. Aves: Origin of birds; Flight adaptations; Migration in birds. 10. Mammals: Characters, distribution and affinities of Prototheria, Metatheria, Eutheria.	10
TOTAL		40

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MJC-2: Diversity of Chordates (Practical: 2 credits)**20 hrs****Practical:**

1. Amphioxus: T.S through pharyngeal, intestinal, and caudal regions.
2. Herdmania: Whole mount, Spicules.
3. Cyclostomata: Petromyzon, Myxine.
4. Fish: Scoliodon, Torpedo, Chimaera, Labeo, Exocoetus, Echeneis, Hippocampus; Scales of fishes.
5. Amphibia: Ichthyophis, Bufo, Hyla, Alytes, Salamandra, Axolotle larva.
6. Reptilia: Chelone, Hemidactylus, Varanus, Vipera, Naja, Bungarus, Uromastix, Chamaeleon, Draco, Calotes, Heloderma; Key for Identification of poisonous and non-poisonous snakes.
7. Aves: Types of beaks and claws, Study of pecten from fowl head and brain of fowl.
8. Mammalia: *Sorex*, Bat (Insectivorous and Frugivorous), *Funambulus*, *Loris*, *Herpestes*, *Erinaceus*, *Macropus*, *Echidna*.

Suggested Books:

1. Young, J. Z. (2004). *The Life of Vertebrates*. III Edition. Oxford university press.
2. Pough H. *Vertebrate life*, VIII Edition, Pearson International.
3. Darlington P.J. *The Geographical Distribution of Animals*, R.E. Krieger Pub Co.
4. Hall B.K. and Hallgrimsson B. (2008). *Strickberger's Evolution*. IV Edition. Jones and Bartlett Publishers Inc.
5. Classification from Young, J. Z. (2004) to be followed.
6. S.S.Lal, Practical Zoology Vertebrates.

Aditya
14/06/23

Shukla
14/6/23

Shukla
14/06/2023