

**LIFE AND DIVERSITY OF CHORDATES**  
**COURSE OBJECTIVES**

Semester	Subject Code	Category	Lecture		Theory		Practical	Credits
			Hrs/ week	Total Hours/ Semester	Hrs/ week	Total Hours/ Semester		
I	21CPZO1B	Core-II	5	75	5	75	Nil	4

- To comprehend the systematic position, functional morphology, mode of life, affinities and biodiversity of chordates.

**COURSE OUTCOMES**

On the successful completion of the course, students will be able to:

CO Number	CO Statement	Knowledge Level (K1-K4)
CO1	To understand the new trends in taxonomy of chordate animals.	K2
CO2	To update the knowledge on affinities and structural peculiarities of vertebrates (fishes)	K4
CO3	To comprehend the fossil history, evolution and adaptive radiation in fishes and amphibian.	K3
CO4	To acquire knowledge on the adaptive radiation, fossils of reptiles, birds and the evolution of mammals.	K4
CO5	To acquire knowledge on comparative anatomy of vertebrates.	K4

Knowledge Level : K1-Remember ; K2 –Understand ; K3 – Apply ; K4 – Analyze

**MAPPING WITH PROGRAMME OUTCOMES**

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S
CO2	M	S	S	S	M
CO3	S	M	S	M	S
CO4	M	S	M	S	M
CO5	S	S	S	S	S

S- Strong; M – Medium ; L- Low

DISTRIBUTION OF MARKS: THEORY 100%

## **UNIT-I**

**15 Hours**

### **Taxonomy**

Principles of taxonomy-Nomenclature- Binomial, Trinomial nomenclature.

Suffix as for super family name-(oidea), family name (idea), use of suffixes 'i', 'orum', 'ae', 'arum', 'ensis' and 'iensis'. Tautonyms, synonyms and Homonyms.

New trends in taxonomy: Ecological approach, Ethological approach, Cytological approach, Biochemical approach and Numerical taxonomy.

**Taxonomic key:** Indented, Simple non-Bracket Grouped type, combination

**Pictorial:** Branching type, Circular and Box-type

## **UNIT-II**

**15 Hours**

**Prochordata:** Systematic position and Phylogeny of Prochordates.

**Ostracoderms:** Silurian and Devonian Ostracoderms. Evolutionary position of the Ostracoderms.

**Placoderms:** Origin of Jaws -Structural peculiarities of Cyclostomata.

## **UNIT-III**

**15 Hours**

**Chondrichthyes:** Fossil history of Chondrichthyes, tendencies in Elasmobranch evolution.

**Actinopterygii:** Origin and evolution, Adaptive radiation of bony fishes.

**Amphibia:** Origin and evolution of Amphibia.

## **UNIT-IV**

**15 Hours**

**Reptilia:** Evolution of Reptilia. Saurischian and Ornithischian Dinosaurs -Rhynchocephalia - Adaptive radiation of Reptiles.

**Aves:** Birds as glorified reptiles. Fossil history of Birds. Palate in Birds. Adaptive radiation in Birds.

**Mammal:** Evolution of Mammals, Structural peculiarities of Prototheria, Metatheria and Eutheria.

## **UNIT-V**

**15 Hours**

**Comparative anatomy:** Origin and evolution of the vertebrate integumentary system. Paired fins and limbs, heart and aortic arches and brain of vertebrates.

**TEXT BOOK**

S.NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	Jolie. M	Chordate Morphology.	East West Press. Pvt, Ltd,	1968.
2.	Romer.A.S and Parson. T.S.	Vertebrate Body	W.B. Saunders Co.,Philaelphia.	1978
3.	Holstead	The Pattern of Vertebrate Evolution.	Freeman and Co. San Francisco. U.S.A.	1969
4.	Kapoor. V.C.	Theory and Practice of Animal Taxonomy.	Oxford and IBH Publishing Co., Pvt, Ltd. New Delhi	1998
5.	Kenneth V. Kardong	Vertebrates- Comparative Anatomy,Functions, Evolution, 4 <sup>th</sup> Edition	Tata McGraw Hill Editions	2011

**REFERENCE BOOKS**

S.NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	Waterman. A.J	Chordate Structure and Function.	McMillan Co. London.	1971
2.	Hyman, L.H	Comparative Vertebrate Anatomy.	The University of Chicago Press, Chicago.	1966
3.	Young, J.2	Life of Vertebrates. Clarendon Press, Oxford.	Clarendon Press, Oxford.	1969
4.	Colbert, E.H	Evolutionof Vertebrates.	John Wiley and Sons Inc, New York.	1969
5.	Hobart M. Smith	Evolution of Chordate Structure	Holt, Rinehart and Winston. Inc. New York.	1960

**WEB SOURCES:**

[www.sciencedirect.com](http://www.sciencedirect.com)

[www.pubmed.com](http://www.pubmed.com)

[www.livescience.com](http://www.livescience.com)

**TEACHING METHODOLOGY**

- Class room teaching
- Assignments
- Discussions
- Home test
- PPT Presentations
- Demonstration from the Video slides, videos and interactive software.

**SYLLABUS DESIGNERS**

- Dr D.Sasikala, Assistant Professor & HOD
- Dr.V.Kiruthiga, Assistant Professor
- Dr V.Rekha, Assistant Professor
- DrA.Vinodhini, Assistant Professor
- Dr.G.Vidhya, Assistant Professor
- Dr. S. Vijayakumari, Assistant Professor