

# Syllabus

2<sup>nd</sup> Semester

**Bachelor of Science in Life Sciences**  
**Zoology**

**Scheme of Programme: Bachelor of Science in Life Sciences Subject:**

**Zoology**

- (Scheme UG A1: Undergraduate Programmes (Multidisciplinary))

**Semester 1**

Course Code	Course Title	Course ID	L			T			P	Total Credits	MARKS			
			(Hrs)	L	T	P	L	T			P	TI	TE	PI
<b>Core Course(s)</b>														
CC-A1	Diversity of Non-Chordates		3	-	2	3	-	1	4	25	50	5	20	100

**Semester 2**

Course Code	Course Title	Course ID	L			T			P	Total Credits	MARKS			
			(Hrs)	L	T	P	L	T			P	TI	TE	PI
<b>Core Course(s)</b>														
CC-A2	Diversity of Chordates		3	-	2	3	-	1	4	25	50	5	20	100

**Semester 3**

Course Code	Course Title	Course ID	L			T			P	Total Credits	MARKS			
			(Hrs)	L	T	P	L	T			P	TI	TE	PI
<b>Core Course(s)</b>														
CC-A3	Cell Biology and Animal Genetics		3	-	2	3	-	1	4	25	50	5	20	100

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240/ZOOLOGY/CC201

Syllabus UG A1: Undergraduate Programmes (Multidisciplinary)

ZOOLOGY: SEMESTER-2

Course Type	Course Code	Name of the Course	Credit	Contact Hours/Week	Internal Assessment Marks	End Term Marks	Max. Marks	Exam Duration
peCC-A2		Diversity of Chordates	1	3	2	5	75	3 hrs.
4 credit		Practical		2	5	50	25	4 hrs.

Level of the course: 100-199

Pre-requisite for the course (if any): Biology as a Subject at 4.0 Level (Class XII)

Course Learning Outcomes (CLO)

1. Student will be able to describe unique characters and recognize life functions of Urochordates
2. Student will be able to describe unique characters and recognize life functions of Pisces
3. Student will be able to describe unique characters and recognize life functions of Amphibians & Reptiles
4. Student will be able to describe unique characters and recognize life functions of Birds & Mammals
5. Students will be capable of identifying the characters and classification of Chordates

Instructions for Paper-Setter

1. Nine questions will be set in all. All questions will carry equal marks.
2. Question No. 1, which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attempt question No. 1 and four more questions selecting one question from each unit.

UNIT	TOPICS	CONTACT HOURS
I	<b>Chordates:</b> Salient features of chordates; Origin and classification of chordates up to class level. Functional morphology of the types with examples emphasizing their biodiversity, economic importance and conservation measures where required. <b>Protochordates:</b> Urochordata: Classification and ecological significance; morphology and affinities Cephalochordata: Classification and ecological significance; morphology and affinities <b>Cyclostomes:</b> Classification and ecological significance; morphology and affinities	12
II	<b>Pisces:</b> General characters and classification of all phyla upto orders with examples emphasizing their biodiversity, economic importance and conservation measures where required. Scales & Fins, Parental care in fishes, fish migration.	11
III	<b>Amphibia:</b> General characters and Classification upto class level; evolutionary tree; Parental Care and Neoteny in Amphibia <b>Reptilia:</b> General characters and Classification upto classes; Extinct reptiles; poison apparatus in snakes, Difference between poisonous and non-poisonous snakes; Key for Identification of poisonous and non-poisonous snakes	11
IV	<b>Aves:</b> General characters and Classifications upto classes. Flight/Aerial adaptation in birds, origin and types of Feathers; Migration in Birds; <i>Archaeopteryx</i> as missing link; <b>Mammals:</b> General characters and classification up to classes; adaptive radiation in mammals; Dentition in mammals	11

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<p style="text-align: center;"><b>V Practical</b></p>	<p>1. Classification upto orders, habit, habitats, external characters and economic importance (if any):</p> <ul style="list-style-type: none"> <li>• Protochordata: <i>Molgula, Hetryllus, Pyrosoma, Doliolum, Olikopleura</i>, and <i>Amphioxus</i>.</li> <li>• Cyclostomata: <i>Myxine, Petromyzon</i> and <i>Ammocoetus larva</i>.</li> <li>• Chondrichthyes: <i>Zygaena, Pristis, Narcine</i> (electric ray), <i>Trygon, Rhinobatus, Raja</i> and <i>Chimaera</i>.</li> <li>• Osteichthyes: <i>Acipenser, Lepidosteus, Muraena, Mystus, Catla, Hippocampus, Syngnathus, Exocoetus, Anabas, Diodon, Ostracion, Tetradon, Echinus, Lophius, Solea</i> and <i>Polypterus</i>. Any of the Lung Fishes.</li> <li>• Amphibia: <i>Necturus, Proteus, Amphiuma, Salamandra, Ambystoma, Axolotl larva, Alytes, Bufo, Rana</i>.</li> <li>• Reptilia: <i>Hemidactylus, Calotes, Draco, Varanus, Phrynosoma, Chamaeleon, Typhlops, Python, Eryx, Ptyas, Bungarus, Naja, Hydrus, Viper, Crocodilus, Gavialis, Chelone</i> (Turtle) and <i>Testudo</i> (Tortoise).</li> <li>• Aves: <i>Casuaris, Arden, Anas, Milvus, Pavo, Eudynamis, Tyto, Alcedo, Halcyon</i></li> <li>• Mammalia: <i>Ornithorhynchus, Echidna, Didelphis, Macropus, Loris, Macaque, Hystris, Funambulus, Felix, Panthera, Canis, Herpestes, Capra, Pteropus</i>.</li> </ul> <p>2. Study of the skeleton of <i>Scoliodon, Labeo, Rana</i> (Frog), <i>Varanus</i>, Pigeon or <i>Gallus</i> and <i>Orcyctolagus</i>/rat.</p> <p>3. Study of the following permanent slides: Tornaria larva, T.S. <i>Amphioxus</i> (through different regions). <i>Oikopleura</i>, Histology of rat (compound tissues), different types of scales.</p> <p>4. Make permanent stained preparations of the following: <i>Salpa</i>, Spicules, and Pharynx of <i>Herdmania, Amphioxus</i>, Cycloid scales</p> <p>5. Field Visit to Protected areas/National Park/Wildlife Sanctuary, Zoological museum or Zoo.</p>	<p style="text-align: center;">30</p>
<p><b>Learning Resources</b></p>		
<ol style="list-style-type: none"> <li>1. R.L.Kotpal. Modern Textbook of Zoology</li> <li>2. E.L. Jordan and Verma. Chordate Zoology.</li> <li>3. Barrington, E.J.W. The Biology of Hemichordata and Protochordata. Oliver and Boyd, Edinburgh.</li> <li>4. Walters, H.E. and Sayles, L.D. Biology of vertebrates. MacMillan &amp; Co., New York.</li> <li>5. Kent, C.G. Comparative anatomy of vertebrates.</li> <li>6. S.S. Lal. Practical Zoology Vertebrate</li> </ol>		

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24.01.25

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