

# Govt. College, Ropar

## Department of Zoology

Class B.Sc. 1<sup>st</sup> Sem. (Session: 2020-2021)

Paper-I : Cell Biology


Paper-II : Non-chordates

Week	Lesson scheduled
1 <sup>st</sup>	<ul style="list-style-type: none"><li>● Overview of Cells: Prokaryotic and Eukaryotic cells, Principle of light and electron microscope</li><li>● Plasma Membrane: Various models of plasma membrane structures, Transport across membranes: Active and Passive transport, Facilitated transport, endocytosis, exocytosis</li></ul>
2 <sup>nd</sup>	<ul style="list-style-type: none"><li>● Cell-Cell Junction structures and functions: Tight junctions, Adhesive junctions, Gap junctions.</li></ul>
3 <sup>rd</sup>	<ul style="list-style-type: none"><li>● Structure and Functions: Endoplasmic Reticulum, Golgi Apparatus, Lysosomes, Ribosome; Vesicular transport from ER to Golgi Apparatus; Protein sorting and transport from Golgi Apparatus.</li></ul>
4 <sup>th</sup>	<ul style="list-style-type: none"><li>● Mitochondria: Structure, Semi-autonomous nature, Endosymbiotic hypothesis Mitochondrial Respiratory Chain, Chemi-Osmotic Hypothesis and ATP Synthase.</li></ul>
5 <sup>th</sup>	<ul style="list-style-type: none"><li>● Cytoskeleton: Structure and Functions: Microtubules, Microfilaments and Intermediate filaments.</li></ul>
6 <sup>th</sup>	<ul style="list-style-type: none"><li>● Nucleus: Structure of Nucleus: Nuclear envelope, Nuclear Pore Complex, Chromatin: Euchromatin and Hetrochromatin, Nucleolus.</li></ul>
7 <sup>th</sup>	<ul style="list-style-type: none"><li>● Cell Division: Mitosis, Meiosis, Cell cycle and its regulation</li></ul>
8 <sup>th</sup>	<ul style="list-style-type: none"><li>● MST</li></ul>
9 <sup>th</sup>	<ul style="list-style-type: none"><li>● MST</li></ul>
10 <sup>th</sup>	<ul style="list-style-type: none"><li>● Protozoa General characteristics, Locomotion in <i>Euglena</i>, <i>Paramecium</i> and <i>Amoeba</i>; Conjugation in <i>Paramecium</i>. Life cycle and pathogenicity of <i>Plasmodium vivax</i> and <i>Entamoeba histolytica</i>.</li></ul>
11 <sup>th</sup>	<ul style="list-style-type: none"><li>● Porifera : General characteristics, Canal system in sponges, Skeleton of sponges.</li></ul>
12 <sup>th</sup>	<ul style="list-style-type: none"><li>● Coelenterata: General characteristics, Polymorphism in <i>Obelia</i>; Corals and coral reef diversity, Conservation of coral and coral reefs.</li></ul>
13 <sup>th</sup>	<ul style="list-style-type: none"><li>● Platyhelminthes: General characteristics, Life cycle and pathogenicity and control measures of <i>Fasciola hepatica</i> and <i>Taenia solium</i>.</li></ul>
14 <sup>th</sup>	<ul style="list-style-type: none"><li>● Aschelminthes: General characteristics, Life cycle, and pathogenicity and control measures of <i>Ascaris lumbricoides</i> and <i>Wuchereria bancrofti</i>,</li></ul>

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Continued.

	Parasitic adaptations in helminthes.
15 <sup>th</sup>	● Annelida : General characteristics, Excretion in Annelida through nephridia; Metamerism in Annelida, Evolution of coelom.
16 <sup>th</sup>	● Arthropoda : General characteristics, Respiration: Terrestrial respiration in <i>Periplaneta</i> – Structure of tracheal system and mechanism of respiration. Aquatic respiration in Prawn– structure and types of gills and mechanism of respiration. Metamorphosis in Lepidopteran Insects; Social life in Termite and honeybee,
17 <sup>th</sup>	● Mollusca: General characteristics, Torsion in Gastropoda; definition of Torsion, effects of Torsion on body structure, detorsion, Feeding and respiration in <i>Pila globosa</i> .
18 <sup>th</sup>	<ul style="list-style-type: none"> <li>● Echinodermata: General characteristics, Water vascular system in <i>Asterias</i>, Echinoderm larvae, affinities with chordates</li> <li>● Hemichordata General characteristics, <i>Balanoglossus</i>; external characters and affinities.</li> </ul>



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### Distribution Of Syllabus & Lesson Plan/Teaching Plan

Name Of Department: **zoology** (Sessions: **2021-22**)

Class: **\_B.Sc-1<sup>st</sup> Yr (Sem 2)**

Paper: **ECOLOGY, CHORDATES**

Two weeks left for MST tentative and one week for revision /queries for MST

TIME PERIOD	TOPICS TO BE COVERED
Week1	Ecological Hierarchy, Sub divisions of ecology, Relation and scope of Ecology Environmental Factors: Liebig's law of minimum, Shelford's law of tolerance, Concept of limiting factors,
Week2	Physical factors of the environment and their effect on animals Topography, light, temperature, water, Humidity. Population: Characteristics—Size & density, Natality, Mortality, Dispersion, Age structure. Biotic potential and Environment resistance, r and K strategie
Week3	Population Dynamics & Regulation: Population Growth curves (I and J), Survivorship curves, Population cycles - Density dependent and Density independent, Regulation of population
Week4	Biotic Community: General Characteristics, Food chain (Linear and Y-shaped), Food web, Flow of Energy, Ecological Pyramids, Productivity. Niche: Niche Concept, Types of Niche—Spatial, Trophic, Multidimensional; Gause's Principle, Lotka-Volterra equation for competition, Ecotone and edge effect
Week5	Biotic Interactions: Intra specific interactions and Inter specific interaction Biotic Interactions: Intra specific interactions and Inter specific interaction
Week6	(Antagonism : Competition, Predation, Parasitism, Ammensalism; Beneficial : Commensalism, Proto cooperation, Mutualism).
Week7	Wild life: Importance, need of conservation, conservation strategies, projects for endangered species project tiger, crocodile breeding project, Gir lion sanctuary project, vulture breeding project.
Week8	Gause's Principle, Lotka-Volterra equation for competition, Ecotone and edge effect Brief classification of Chordata, Chordate characters, Origin of Chordata
Week9	Protochordata: General characteristics, affinities of Hemichordata, Urochordata and Cephalochordata; Study of larval forms in protochordates; Retrogressive metamorphosis in Urochordat
Week10	Advanced features of vertebrates over Protochordata Agnatha: General characteristics, External features of Petromyzon.
Week11	Pisces: General characteristics and outline classification (up to order), General characteristics of Chondrichthyes and Osteichthyes, Scales and fins in fishes
Week12	Parental care in fishes, Migration, Swim bladder, Osmoregulation in fishes, Economic importance of fishes Origin of Tetrapoda (Evolution of terrestrial ectotherms) Amphibia: General character, Neoteny and Paedogenesis, Parental care in Amphibia
Week 12 Continued..	

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Week13	Higher Chordata: Salient features, of various Higher chordate groups as covered under respective taxonomic groups. Reptilia: A brief knowledge of extinct reptiles. Poisonous and non-poisonous snakes. Poison apparatus of snake. Snake venom and anti-venom. Evolution and Adaptive radiation in reptiles.
Week14	Aves: General characteristics, Origin and Ancestry of birds, Archaeopteryx-a connecting link, Flightless birds and their distribution. Principles and aerodynamics of flight, Flight adaptations in birds, Perching mechanism, Bird migration.
Week15	Mammalia: General characters, Origin and ancestry, affinities of Prototheria. Adaptive radiation, Dentition in mammals



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