

LESSON PLAN

Session 2024-25

Subject: Animal Diversity of Non- Chordates

Name of the faculty: Tarandeep Kaur & Neha Dhiman

Class: BSC I(NEP)

Paper code: B23-ZOO-103

Month	Week	Topics to be covered	Assignments
July	25.07.24-31.07.24	Basics of Invertebrates General characteristics and Classification of Phylum Coelenterata	Terminology
August	1.08.24-10.08.24	Terminology used in invertebrates Obelia – Systematic position, habitat, habits, morphology and Difference between polyp and medusa form.	Terminology
	12.08.24-17.08.24	Terminology used Polymorphism in obelia –Hydranth, blastosyle, medusa and physiology of obelia	Related Diagrams
	19.08.24-24.08.24	Phylum-Protozoa- Plasmodium Reproduction and life history of obelia, alternation of generation, homology between Polyp and medusa	Related Diagrams
	26.08.24-31.08.24	Phylum Porifera, Sycon -External Morphology, canal System, Histology, skeleton General Characteristics and Classification of Phylum Platyhelminthes and Aschelminthes.	Related Diagrams
September	2.09.24-7.09.24	Sycon -Reproductive System, Development and Adaptations Fasciola hepatica – Systematic position, habitat, habits, morphology	Related Diagrams
	9.09.24-14.09.24	Test Of Plasmodium Phylum Annelida- Basics Fasciola hepatica – Body wall, Parenchyma, digestive system, excretory system	Related Diagrams
	16.09.24-21.09.24	Pheretima -External Morphology Fasciola hepatica – Nervous system, Respiratory system, Sense organs, Reproductive system	Related Diagrams
	23.09.24-30.09.24	Fasciola hepatica – Development and Life History, Nature of life history, Pathogenecity of <i>Fasciola</i> , Parasitic Adaptations Body Wall and Digestive System Of Pheretima	Related Diagrams
		Circulatory System and Nervous System Of Pheretima	
October	01.10.24-05-10.24	Reproductive System of Pheretima General Characteristics and Classification of Mollusca.	Related Diagrams

	07.10.24-12.10.24	Sessionals Diagrams Of Plasmodium and Sycon Pila globosa – Systematic position, habitat, habits, morphology, Microscopic structure of Shell	Related Diagrams
	14.10.24-19.10.24	Basics Of Arthropoda Periplaneta -Systematic Position, Habitat, Habits, External Morphology Pila globosa – Physiology of Digestive system, Respiratory system, Nervous system ,Blood vascular system	Related Diagrams
	21.10.24-26.10.24	Periplaneta - Digestive and Respiratory System, Excretory System Pila globosa –, Sense organs, reproductive system, fertilization, ovulation, and Development.	Related Diagrams
	27.10.24-03.11.24	Diwali vacations	
November	4.11.24-09.11.24	Periplaneta - Reproductive System General Characteristics and Classification of Echinodermata Asterias – Systematic Position, Habitat, Habits, Morphology	Related Diagrams
	11.11.24-16.11.24	Asterias – Circulatory System, Water vascular System Revision of Annelida and Arthropoda	Related Diagrams
	18.11.24-22.11.24	General Characteristics of Hemichordata with Example. Important Questions and Practice	
EVEN SEMESTER			
Paper Code: B23-ZOO-201			
Nomenclature of the Paper: Animal Diversity of Chordates			
Month	Week	Topics to be covered	Assignments
January	01.01.25-04.01.25	Salient Features of Chordata and it's Classification	Related Diagrams
	06.01.25-11.01.25	Herdmania- Systematic Position, External Morphology and Test	Related Diagrams
	14.01.25-18.01.25	Digestive System and Circulatory System of Herdmania	Related Diagrams
	20.01.25-25.01.25	Remaining Systems of Herdmania Affinities of Urochordata	Related Diagrams
	27.01.25-31.01.25	Pisces-General Characters and Classification Scales and Fins	Related Diagrams
February	01.02.25-08.02.25	Type Study of Labeo...All Systems	Related Diagrams
	10.02.25-15.02.25	Amphibia-General Characters and Classification up to class level Systematic Position, Habit, Habitat and Morphology of	Related Diagrams
		Rana, Skin of Rana	
	17.02.25-22.02.25	All Systems of Rana	Related Diagrams
	24.02.25-28.02.25	Parental Care and Neoteny in Amphibia	Related Diagrams

March	01.03.25-08.03.25	Reptilia- General Characters and Classification up to class level	Related Diagrams
	09.03.25-16.03.25	Holi Vacations	
	17.03.25-22.03.25	Aves- General Characters and Classification up to class level	Related Diagrams
	24.03.25-31.03.25	Flight /Aerial adaptations in birds Archaeopteryx as missing link	Related Diagrams
April	01.04.25-05.04.25	Mammalia- General Characters and Classification up to class level Systematic Position, Habit, Habitat and Morphology and Skin of Rattus	Related Diagrams
	07.04.25-12.04.25	Rat-Digestive System	Related Diagrams
	14.04.25-19.04.25	Respiratory and Circulatory System of Rat	Related Diagrams
	21.04.25-26.04.25	Nervous System, Sense organs and reproduction in Rat	Related Diagrams
	28.04.25-30.04.25	Revision and Diagrams	
May	01.05.25 onwards	Examinations	

LESSON PLAN

Session 2024-25

Subject: Cell Biology and Genetics

Name of the faculty: Tarandeep Kaur & Neha Dhiman

Class: BSC II (NEP)

Paper: B23-ZOO-301

Month	Week	Topics to be covered	Assignments
July	25.07.24-31.07.24	General structure of animal Cell	Related Diagrams
August	1.08.24-10.08.24	Fluid mosaic model of plasma membrane, Passive transport Ribosomes; types and biogenesis	Related Diagrams
	12.08.24-17.08.24	Sodium Potassium exchange Pump, symport, Antiport and Active transport Role of Ribosomes	Related Diagrams
	19.08.24-24.08.24	Endoplasmic Reticulum : Structure, Types Lysosomes: structure, enzymes and their role	Related Diagrams
	26.08.24-31.08.24	Functions Of ER Polymorphism in lysosomes	Related Diagrams
September	2.09.24-7.09.24	Golgi complex, structure and biogenesis Mitochondria: structure, as semi- autonomous organelle	Related Diagrams
	9.09.24-14.09.24	Functions of Golgi complex Biogenesis and functions of Mitochondria	Related Diagrams
	16.09.24-21.09.24	Mendel's Law of inheritance Cilia; structure and function	Related Diagrams
	23.09.24-30.09.24	Linkage and Re-combination Flagella; Structure and function	Related Diagrams
October	01.10.24-05-10.24	Crossing Over Nucleus: ultrastructure and function	Related Diagrams
	07.10.24-12.10.24	Gene Mapping, Human Karyotype Nucleosome concept and role of histones.	Related Diagrams
	14.10.24-19.10.24	Sex determination and its Mechanisms Multiple allelism	Related Diagrams
	21.10.24-26.10.24	Role of hormones in sex determination, Haemophilia Blood groups in Man, Human genetics	Related Diagrams
	27.10.24-03.11.24	Diwali Vacations	
November	4.11.24-09.11.24	Sex linked Inheritance Chromosomal abnormalities	Related Diagrams
	11.11.24-16.11.24	Sex Limited and sex influenced inheritance	Related Diagrams
		Inborn errors of metabolism	
	18.11.24-22.11.24	Cytoplasmic inheritance Applied Genetics, DNA fingerprinting, Transgenic animals.	Related Diagrams

EVEN SEMESTER

Paper Code: B23-ZOO-401

Nomenclature of the Paper: Biomolecules and human Physiology

Month	Week	Topics to be covered	Assignments
January	01.01.25-04.01.25	Introduction about Biomolecules. Nutrition: Nutritional components: Carbohydrates, fats, lipids, Vitamins and Minerals; Types of nutrition & feeding,	Related Diagrams
	06.01.25-11.01.25	Biomolecules: Introduction, classification, structure, function and general properties of proteins Nutrition: Digestion of lipids, proteins, carbohydrates & nucleic acids; symbiotic digestion, lactose intolerance	Related Diagrams
	14.01.25-18.01.25	Biomolecules: Introduction, classification, structure, function and general properties of carbohydrates Nutrition: Physico-chemical mechanism of Absorption of nutrients & assimilation; control of secretion of digestive juices.	Related Diagrams
	20.01.25-25.01.25	Biomolecules: Introduction, classification, structure, function and general properties of lipids. Muscles: Types of muscles, ultra-structure of skeletal muscle, neuromuscular junction.	Related Diagrams
	27.01.25-31.01.25	Biomolecules: Nomenclature, classification and mechanisms of enzyme action; Muscles: Bio-chemical and physical events during muscle contraction, single muscle twitch, tetanus, muscle fatigue	Related Diagrams
February	01.02.25-08.02.25	Biomolecules: Enzyme Kinetics, factors affecting enzyme activity, inhibition of enzymes Muscles: muscle tone, oxygen debt., Cori's cycle, single unit smooth muscles, their physical and functional properties.	Related Diagrams
	10.02.25-15.02.25	Biomolecules: Transport through biomembranes (Active and Passive) Circulation: Origin, conduction and regulation of heart beat; cardiac cycle, electrocardiogram, cardiac output	Related Diagrams
	17.02.25-22.02.25	Biomolecules: osmotic pressure, hydrogen ion concentration and buffers fluid pressure and flow pressure in closed and open Circulation: circulatory system; Composition and functions of blood & lymph;	Related Diagrams
	24.02.25-28.02.25	Neural Integration: Nature, origin , propagation of nerve impulse along with medullated Circulation: Mechanism of coagulation of blood, coagulation factors;	Related Diagrams
March	01.03.25-08.03.25	Neural Integration: propagation of nerve impulse along with	Related Diagrams

		non-medullated nerve fibre, conduction of nerve impulse across synapse Circulation: Anticoagulants, haemopoiesis.	
	09.03.25-16.03.25	Holi Vacations	Related Diagrams
	17.03.25-22.03.25	Neural Integration: synaptic delay and synaptic fatigue, Neurotransmitter. Respiration: Exchange of respiratory gases	Related Diagrams
	24.03.25-31.03.25	Chemical integration of Endocrinology: Structure, chemical nature Respiration: transport of gases, lung air volumes, oxygen dissociation curve of haemoglobin,	Related Diagrams
April	01.04.25-05.04.25	Chemical integration of Endocrinology: mechanism of peptide and steroid hormone action; physiology of hypothalamus Respiration: Bohr's effect, Hamburger's phenomenon (Chloride shift),	Related Diagrams
	07.04.25-12.04.25	Chemical integration of Endocrinology: pituitary, thyroid, parathyroid, adrenal, pancreas and gonads, Hormonal disorders. Respiration: control / regulation of respiration (peripheral reflexes, chemical control and Higher centres), Myoglobin.	Related Diagrams
	14.04.25-19.04.25	Reproduction: Spermatogenesis, Capacitation of spermatozoa, oogenesis, ovulation, Excretion: Patterns of excretory products viz. Amonotelic, ureotlic uricotelic,	Related Diagrams
	21.04.25-26.04.25	Reproduction: formation of corpus luteum, oestrous-anoestrous cycle, Menstrual cycle in human, Excretion: ornithine cycle (Kreb's – Henseleit cycle) for urea formation in liver; Urine formation, composition of Urine	Related Diagrams
	28.04.25-30.04.25	Reproduction: Eertilization, implantation and gestation, parturition Excretion: counter-current mechanism of urine formation, osmoregulation, micturition.	Related Diagrams
May	01.05.25 onwards	Exams	

LESSON PLAN

Session: 2024-25

Subject: Environmental Biology

Name of the faculty: Ms. Neha Dhiman

Class: BSC III

Paper: I

Month	Week	Topics to be covered	Assignments
July	25.07.24-31.07.24	Ecology: Introduction and Basic concepts; Introduction, some Important Definitions Of ecology, Forms of ecology, Chronology of ecology, Ecology and Levels of organization, Relationships between Ecology and other sciences, Significance of Ecology, Habitat, Microhabitat and Ecological Niche, Ecological Equivalents.	Related Diagrams
	1.08.24-10.08.24	Environment: Abiotic and Biotic Factors; Introduction, Abiotic Factors – Climatic Factors; Light, Temperature, Humidity, Wind, Rainfall, Water, Atmospheric gases. Edaphic Factors; Soil, Topographic Factors. Biotic Factors; Intra – specific interactions, Inter – specific Interactions	Related Diagrams
August	12.08.24-17.08.24	Ecosystem: Basic concepts; Introduction, Definition, Term, Examples, Kinds and size of Ecosystems, Structure of an ecosystem, Basic Requirements of an ecosystem, Dynamics of Ecosystem, Examples of ecosystem, Deep sea – an Incomplete ecosystem, Trophic Levels, Food Chain, Food web, Energy Flow in an ecosystem, Ecological pyramids, Productivity, Ecological Energetics.	Related Diagrams
	19.08.24-24.08.24	Biomes: Major Ecosystem; Definition, Introduction, Types of Biomes, Terrestrial biomes; Tundra, Taiga, Temperate deciduous Forests, Tropical rain forests, Tropical deciduous forests, Chaparral, Tropical Savannah, temperate grassland, Desert. Aquatic Biomes; Marine biomes (open seas, Coastal regions, Estuaries), fresh water biomes; Lakes and ponds, streams and rivers, Marshes. Man – Made Ecosystems, Boundaries of Ecosystems.	Related Diagrams
	26.08.24-31.08.24	Biosphere and Biogeochemical cycles; Introduction, Definition, History, Extension and components, Sub- Divisions, Closed and open systems, Matter and energy, Biogeochemical cycles, Types of biogeochemical cycles, common biogeochemical cycles, Flow of energy, Ten percent law.	Related Diagrams

September	02.09.24-07.09.24	<p>Test</p> <p>Population: Growth and regulation; Population, characteristics of a population, Demographic Transition, growth curve, regulation of population, significance of studying human population, Trends in world population, Population Trends in india, Determination of human Population growth rate, Factors determining growth rate.</p>	Related Diagrams
	09.09.24-14.09.24	<p>Limit on human Population growth, Population in Develooped vs developing countries, Causes Increases in Human Population, Population and Economic Development, Population as a resource, Malthus Theory of Human Population growth, Factors controlling population density, Reproductive Health, Methods to control over Population, Birth Control Measures, Amniocentesis, Inequality of sexes, Test tube babies</p>	Related Diagrams
	16.09.24-21.09.24	<p>Biodiversiy and natural resources; Biodiversity;Introduction, Levels or components of biodiversity, Community diversity, Gradients of biodiversity,Geography and biodiversity,Conservation of biological diversity, Uses of Biodiversity, threats to biodiversity, Extinction of species, The IUCN red list threat categories, Conservation of biodiversity, International efforts for conservation of wildlife, WildLife organization, biodiversity Conservation efforts in india, Protected areas in india, Sacred forests and sacred lakes, Exsitu conservation Strategies,hot spots of biodiversity.</p>	Related Diagrams
	23.09.24-30.09.24	<p>Natural resources and their conservation ; Man – The most dominant animal of biosphere, Noosphere, natural resources, Classes of Natural resources, Water resources, soil, mineral resources, grassland, energy, Wet lands, flora and fauna, Management and Replenishment of natural resources, forests, conservation of forests, forest Management, Deforestation, Forests and wildlife laws, Environmental ethics and resource use.</p>	Related Diagrams
October	01.10.24-05-10.24	<p>Migration in birds; introduction, types of bird migration, Purpose of bird migration, cause of bird migration, Range of migration, speed migration, altitude of migration, regularity of migration, routes of migration, guiding mechanism in bird navigation, stimulus for bird migration.</p> <p>Parental Care; Introduction, care of the eggs and young</p>	Related Diagrams

		ones, Parental care in birds, parental care in mammals.	
	07.10.24-12.10.24	Sessional exam Biotic community and population interactions; Definition, introduction, characteristics, Dominant species, genus vs community, community periodicity, Interspecific interactions, Proto – cooperation, Mutualism.	Related Diagrams
	14.10.24-19.10.24	Commensalism, scavenging, predation, Parasitism, parasitoidism, competition, Amensalism, Mimicry, Ecological or biotic succession, Hydrosere, Lithosere.	Related Diagrams
	21.10.24-26.10.24	Environmental Pollution; Definition, introduction, Pollutants, Air Pollution – types of source of air pollution, Major air Pollutants and effect of air pollution, Effect of air Pollution on plants, animals and human beings, Photochemical smog, effect of air on climate, effect of acid rain, carbondioxide, green house effect and global warming.	Related Diagrams
	27.10.24-03.11.24	Diwali Vacations	
November	4.11.24-09.11.24	International conferences on global warming, International conferences on global warming, Bhopal tragedy, control of air pollution, stratospheric ozone depletion, carbon dioxide fertilization effect, recent steps taken to reduce air pollution. water pollution; cause of water pollution, source of water pollution, effect of water pollution, Yamuna action plan, Ganga action plan, Biological magnification.	Related Diagrams
	11.11.24-16.11.24	marine pollution; control of waste water, recent reports on water pollution and its control. soil pollution; types of soil pollutant, types of soil pollution, salination of soil, prevention of soil pollution, effects of soil pollution, deforestation, urban solid waste management, Land Degradation, Land management.	Related Diagrams
	18.11.24-22.11.24	Radioactive pollution; types of radioactive pollution, effects of radioactivity, India's management of nuclear wastes, types of radiations, sensitivity to radiations, control of radioactive pollution, nuclear disasters. noise pollution; effect of noise pollution, source of noise pollution, control of noise pollution, globalisation of environmental problems.	Related Diagrams
EVEN SEMESTER			
Paper: II Nomenclature of the Paper: Aquaculture and Pest management II			
Month	Week	Topics to be covered	Assignments
January	01.01.25-04.01.25	Fish seed production ; Definition, Natural fish seed resources,	Related Diagrams

		Riverine spawn resource investigation technique	
	06.01.25-11.01.25	Hatchery seed production, Artificial fertilization, Ecological factors affecting induced breeding.	Related Diagrams
	14.01.25-18.01.25	Fish feed; Introduction ; food and feeding habits of some culturable fresh water fishes, Artificial food, pelleting, Use of growth promoting hormones for fish growth.	Related Diagrams
	20.01.25-25.01.25	Techniques of fish culture; Introduction, Pond cultures, various types of ponds, arrangement of various types of fish ponds	Related Diagrams
	27.01.25-31.01.25	Pond maintenance, Running water culture, Recycled water culture, Cage culture, Poly culture.	Related Diagrams
February	01.02.25-08.02.25	Management and marketing of fishes and their products;	Related Diagrams
		management of fishery, economics of fish farming, Marketing of fishes and their products	
	10.02.25-15.02.25	Latest advancements in aquaculture technology; biotechnology in fisheries	Related Diagrams
	17.02.25-22.02.25	, cryopreservation of gametes, Monosex culture, Sex reversal,	Related Diagrams
	24.02.25-28.02.25	Hybridization, transgenic fish.	Related Diagrams
	01.03.25-08.03.25	Insect Pests of stored grains; Introduction, Six Stored grain pests their systematic position, habits and nature of damage caused, Life cycle and control of <i>Trogoderma granarium</i> .	Related Diagrams
March	09.03.25-16.03.25	Holi Vacations	Related Diagrams
	17.03.25-22.03.25	Biological control of insects; Definition, requirements, Precautions, Problems,	Related Diagrams
	24.03.25-31.03.25	Characteristics of a natural enemy, natural enemies used in biological control, significance.	Related Diagrams
	01.04.25-05.04.25	Chemical control of insects; Definition, classification – Pesticides, attractants, repellents, insecticides.	Related Diagrams
April	07.04.25-12.04.25	Integrated pest management; Introduction, Methods of control of insect pests – Cultural Methods of control, Physical and Mechanical Methods,	Related Diagrams
	14.04.25-19.04.25	Biological control methods, Legal control, Chemical control, Use of hormones, pheromones and antifeedants.	Related Diagrams
	21.04.25-26.04.25	Birds Pests and their management; Bird pests, bird pest species of india, Nature and extent of damage, Management of Pestiferous birds.	Related Diagrams

	28.04.25-30.04.25	Rodent pests and their Management; rodent pest species of india, Nature and extent of damage, Methods of rodents control.	Related Diagrams
May	01.05.25 onwards	Exams	

LESSON PLAN

Session: 2024-25

Class: B.Sc. III

Subject: Evolution and Developmental Biology

Name of the faculty: Tarandeep Kaur

Month	Week	Topics to be covered	Assignments
July	25.07.24-31.07.24	Developmental Biology -Introduction	Terminology
August	1.08.24-10.08.24	Spermatogenesis	Related Diagrams
	12.08.24-17.08.24	Oogenesis	Related Diagrams
	19.08.24-24.08.24	Fertilization and Parthenogenesis	Related Diagrams
	26.08.23-31.08.24	Cleavage and Blastulation	Related Diagrams
September	02.09.24-07.09.24	Frog Embryology	Related Diagrams
	9.09.24-14.09.24	Chick Embryology	Related Diagrams
	16.09.24-21.09.24	Embryonic Induction, Extra Embryonic Membranes	Related Diagrams
	23.09.24-30.09.24	Regeneration, Revision	Related Diagrams
October	01.10.24-05-10.24	Evolution - Origin of Life	Related Diagrams
	07.10.24-12.10.24	Sessionals Morphological evidences	Related Diagrams
	14.10.24-19.10.24	Anatomical Evidences	Related Diagrams
	21.10.23-26.10.24	Embryological and Paleontological Evidences	
	27.10.24-03.11.24	Diwali Vacations	
November	4.11.24-09.11.24	Theories of Evolution	Related Diagrams
	11.10.24-16.11.24	Modern's Concept of Evolution	Related Diagrams
	18.11.24-22.11.24	Micro, macro and mega Evolution	Related Diagrams
EVEN SEMESTER			
Nomenclature of the Paper: Aquaculture and Pest Management-I			
Month	Week	Topics to be covered	Assignments
January	01.01.25-04.01.25	Basics of Insect Pests, Sugarcane Pests	Related Diagrams
	06.01.25-11.01.25	Pests of Wheat and Cotton	Related Diagrams
	14.01.25-18.01.25	Pests of Paddy	Related Diagrams
	20.01.25-25.01.25	Pests of Vegetables	Related Diagrams
	27.01.25-31.01.25	Test of Pests	Related Diagrams
February	01.02.25-08.02.25	Introduction to World Fisheries Fresh Water and Marine Fishes of India	Related Diagrams
	10.02.25-15.02.25	Fishing Gears and Fishing Crafts	Related Diagrams
	17.02.25-22.02.25	Fin Fishes and Crustaceans	Related Diagrams
	24.02.25-28.02.25	Molluscs and their Cultures	Related Diagrams
March	01.03.25-08.03.25	Seminars Given by Students	Related Diagrams
	09.03.25-16.03.25	Holi Vacations	Related Diagrams
	17.03.25-22.03,25	Pearl Fishery and latest Techniques	Related Diagrams
	24.03.25-31.03.25	Latest Techniques	Related Diagrams
	01.04.25-05.04.25	Different Types of Nets and Happas	Related Diagrams
	07.04.25-12.04.25	Lacustrine Fisheries	Related Diagrams

April	14.04.25-19.04.25	Brackish Water Culture	Related Diagrams
	21.04.25-26.04.25	Revision	
	28.04.25-30.04.25	Important Questions and Tests	
May	01.05.25 onwards	Examinations	