

**DYAL SINGH COLLEGE
KARNAL**

DEPARTMENT OF ZOOLOGY

Lesson Plans

Session: 2023-24

**ODD
SEMESTERS**


DYAL SINGH COLLEGE, KARNAL

Lesson Plan (2023-24) ODD Semester

CLASS: BSc (Life Science) Semester I & 5 Year
Integrated MSc (Forensic Science) Semester I

SUBJECT: Zoology (Major)

Week 1 (July 24-29)	-
Week 2 (August 1-5)	Phylum Protozoa: General characters and classification up to class level Type study of Plasmodium
Week 3 (August 7-12)	Phylum Porifera: General characters and classification up to class level, Type study of Sycon
Week 4 (August 14-18)	Phylum – Coelentrata: General characters and classification up to class level Type Study of Obelia-I
Week 5 (August 21-26)	Type Study of Obelia-II Phylum – Platyhelminthes and Aschelminthes: General characters and classification up to class level.
Week 6 (August 28- September 2)	Type study of Liver Fluke, Fasciola hepatica
Week 7 (September 4 -9)	Phylum – Annelida: General characters and classification up to class level. Type study of Earthworm, <i>Pheretima posthuma</i> (Habitat, habits, metamerism)
Week 8 (September 11 -16)	Type study of Earthworm, <i>Pheretima posthuma</i> (digestive System, circulatory system, nervous system, reproductive system)
Week 9 (September 18 -22)	Phylum – Arthropoda: General characters and classification up to class level. Type study of Cockroach, <i>Periplaneta americana</i> (Habitat, habits, external morphology)
Week 10 (September 25 -30)	Type study of Cockroach, <i>Periplaneta americana</i> (digestive system, respiratory system, excretory system, reproductive system)
Week 11 (October 3-7)	Phylum - Mollusca: General characters and classification up to class level, Type study of Pila-I
Week 12 (October 9-14)	Type study of Pila-II
Week 13 (October 16 - 21)	Phylum – Echinodermata: General characters and classification up to class level, Type study of <i>Asterias</i> (Sea Star) (Habitat, habits, external morphology)
Week 14 (October 23-31)	Type study of <i>Asterias</i> (water vascular system, Circulatory System) Phylum Hemichordata: General characters of Hemichordates with examples
Week 15 (November 2-9)	Sessional Exams
Week 16 (November 10-16)	Diwali Break
November 17	Sessional MDC
November 18	Revision / Distribution of sessional exams answer sheets
Week 17 (November 20-24)	Revision


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DYAL SINGH COLLEGE, KARNAL

Lesson Plan (2023-24) ODD Semester

CLASS: BA / BCom / BSc Semester I

SUBJECT: Zoology (MDC)

Week 1 (July 24-29)	-
Week 2 (August 1-5)	-
Week 3 (August 7-12)	-
Week 4 (August 14-18)	Zoology: Definition and scope, introduction to Animal Kingdom, animal characters
Week 5 (August 21-26)	Non-Chordates and Invertebrates with examples, Invertebrate Phyla, Introduction to basic characters of animal with special reference to the non chordates
Week 6 (August 28- September 2)	Biodiversity: Introduction and Scope; General characters of Protozoa and Porifera
Week 7 (September 4 -9)	Study of Amoeba and sponges with special reference to its structure and economic importance
Week 8 (September 11 -16)	General characters of Coelentrata and Annelida, Ecological importance of corals
Week 9 (September 18 -22)	Morphology of earthworm and its ecological role, Economic importance of Leech
Week 10 (September 25 -30)	General characters of Arthropoda and Mollusca,
Week 11 (October 3-7)	Study of basic characters of insects and snails; Insects as pest: Grasshopper,
Week 12 (October 9-14)	Economic importance of Honey Bee; Snails as pest in Paddy fields
Week 13 (October 16 - 21)	General characters of Echinodermata; Study of basic characters of Star fish
Week 14 (October 23-31)	Star fish with reference to its role in ecosystem; Economic importance of Star Fish
Week 15 (November 2-9)	Sessional Exams
Week 16 (November 10-16)	Diwali Break
November 17	Sessional MDC
November 18	Revision / Distribution of sessional exams answer sheets
Week 17 (November 20-24)	Revision
Week 18 (November 27 – December 2)	Revision
Week 19 (December 4, 5)	Revision


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DYAL SINGH COLLEGE, KARNAL

Lesson Plan (2023-24) ODD Semester

CLASS: BSc (Medical) Semester III & 5 Year
Integrated MSc (Forensic Science) Semester III

SUBJECT: Zoology (Papers I & II)

Week 1 (July 24-29)	Chordates: Origin and Evolutionary Tree
Week 2 (August 1-5)	Introduction, Classification, structure, function and general properties of proteins, carbohydrates and lipids
Week 3 (August 7-12)	Protochordates: Systematic position, distribution, ecology, morphology and affinities
Week 4 (August 14-18)	Nomenclature, classification and mechanism of enzyme action
Week 5 (August 21-26)	Urochordata <i>Herdmania</i> : Type study
Week 6 (August 28- September 2)	Transport through biomembranes (Active and Passive), Buffers
Week 7 (September 4 -9)	Cephalochordata <i>Amphioxus</i> : Type Study
Week 8 (September 11 -16)	Nutrition: Nutritional components; Carbohydrates, fats, lipids, Vitamins and Minerals. Types of nutrition & feeding.
Week 9 (September 18 -22)	Cyclostomes: Type study of <i>Petromyzon</i> .
Week 10 (September 25 -30)	Nutrition: Digestion of dietary constituents, viz. lipids, proteins, carbohydrates and nucleic acids; symbiotic digestion. Absorption of nutrients & assimilation; control of enzyme secretion
Week 11 (October 3-7)	Pisces: Scales and Fins, Parental Care, Fish migration
Week 12 (October 9-14)	Muscles: Types of muscles, ultra-structure of skeletal muscle. Bio-chemical and physical events during muscle contraction
Week 13 (October 16 - 21)	Pisces: Type study of <i>Labeo</i>
Week 14 (October 23-31)	Bones: Structure and types, classification, bone growth and resorption, effect of ageing on skeletal system and bone disorders
Week 15 (November 2-9)	Sessional Exams
Week 16 (November 10-16)	Diwali Break
November 17	Sessional MDC
November 18	Revision / Distribution of sessional exams answer sheets
Week 17 (November 20-24)	Revision


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Lesson Plan (2023-24) ODD Semester

CLASS: BSc (Medical) Semester V & 5 Year
Integrated MSc (Forensic Science) Semester V

SUBJECT: Zoology (Papers I & II)

Week 1 (July 24-29)	Basic concepts of ecology: Definition, signification. Concepts of habitat and ecological niche.
Week 2 (August 1-5)	Factors affecting environment: Abiotic factors (light-intensity, quality and duration), temperature, humidity, topography; edaphic factors; Biotic factors.
Week 3 (August 7-12)	Introduction to major ecosystem of the world. Ecosystem: Concept, components, properties and functions.
Week 4 (August 14-18)	Ecological energetics and energy flow-food chain, food web, Trophic structure; ecological pyramids concept of productivity.
Week 5 (August 21-26)	Biogeochemical cycles: Concept, reservoir pool, gaseous cycles and sedimentary cycles.
Week 6 (August 28-September 2)	Population: Growth and regulation. Concept of biodiversity and conservation of natural resources. Migration in fishes and birds.
Week 7 (September 4 -9)	Parental care in animals. Population interactions: Competition, predation, parasitism, commensalisms and mutualism.
Week 8 (September 11 -16)	Environmental Pollution: Air, water, soil and management strategies.
Week 9 (September 18 -22)	Origin of life. Concept and evidences of organic evolution. Theories of organic evolution. Concept of micro, macro-and mega-evolution.
Week 10 (September 25 -30)	Concept of species. Phylogeny of horse. Evolution of man.
Week 11 (October 3-7)	Historical perspectives, aims and scope of developmental biology. Generalized structure of mammalian ovum & sperm, spermatogenesis and Oogenesis
Week 12 (October 9-14)	Fertilization, parthenogenesis, different types of eggs and patterns of cleavage.
Week 13 (October 16 - 21)	Process of blastulation and fate-map construction in frog and chick. Gastrulation in frog and chick up to the formation of three germinal layers.
Week 14 (October 23-31)	Elementary knowledge of primary organizers. Elementary knowledge of extra embryonic membranes. Concepts of competence, determination and differentiation. Concept of regeneration.
Week 15 (November 2-9)	Sessional Exams
Week 16 (November 10-16)	Diwali Break
November 17	Sessional MDC
November 18	Revision / Distribution of sessional exams answer sheets
Week 17 (November 20-24)	Revision


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**EVEN
SEMESTERS**

DYAL SINGH COLLEGE, KARNAL

Lesson Plan (2023-24) EVEN Semester

CLASS: BSc (Life Science) Semester II & 5 Year SUBJECT: Zoology (Major)
Integrated MSc (Forensic Science) Semester II

Week 1 (January 1-6)	Chordates: Salient features of chordates Principles of classification
Week 2 (January 8-13)	Protochordates: Urochordata: Systematic position, distribution, ecology, morphology.
Week 3 (January 15-20)	Affinities of Urochordates Type Study of Herdmania-I
Week 4 (January 22-27)	Urochordata: Type Study of Herdmania-II
Week 5 (January 29- February 3)	Pisces: General characters and classification up to classes with examples emphasizing their biodiversity, Scales & Fins
Week 6 (February 5-10)	Type study of Labeo-I
Week 7 (February 12-17)	Type study of Labeo-II
Week 8 (February 19-23)	Amphibia: General characters and Classification upto class level Type study of frog-I
Week 9 (February 26 - March 2)	Type study of frog-II
Week 10 (March 4-9)	Parental Care and Neoteny in Amphibia Reptilia: General characters and Classification upto classes
Week 11 (March 11-16)	Aves: General characters and Classifications upto classes. Flight/Aerial adaptation in birds-I
Week 12 (March 18-22)	Flight/Aerial adaptation in birds-II
Week 13 (March 23-31)	Holi Break
Week 14 (April 1-6)	Archaeopteryx as missing link
Week 15 (April 8-13)	Mammals: General characters and classification up to classes. Type study of Rat-I
Week 16 (April 15-20)	Type study of Rat-II
Week 17 (April 22- 30)	Revision


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Lesson Plan (2023-24) EVEN Semester

CLASS: BA / BCom / BSc Semester II

SUBJECT: Zoology (MDC)

Week 1 (January 1-6)	Basics of Chordates: Define and Salient features of chordates
Week 2 (January 8-13)	Basics of Chordates: Difference between non chordates and chordates
Week 3 (January 15-20)	Basics of Chordates: Characters of protochordates
Week 4 (January 22-27)	Pisces (Fishes): Characteristic features of freshwater and marine fishes
Week 5 (January 29- February 3)	Pisces (Fishes): Edible fishes of India, Composite fish culture
Week 6 (February 5-10)	Class Amphibia: Features of amphibians, Parental care in amphibians
Week 7 (February 12-17)	Class Amphibia: Role of amphibians in ecosystem, Identification of turtles and tortoise, Frog and Toad.
Week 8 (February 19-23)	Class Reptilia: Features of Reptiles, Common reptiles of India
Week 9 (February 26 - March 2)	Class Reptilia: Identification of Poisonous and non poisonous snakes
Week 10 (March 4-9)	Class Reptilia: Difference between crocodile and Gharial
Week 11 (March 11-16)	Class Aves: Characteristic features of birds
Week 12 (March 18-22)	Class Aves: Common birds of India, Flight adaptations in birds
Week 13 (March 23-31)	Holi Break
Week 14 (April 1-6)	Class Aves: Commercial uses of birds, Role of birds in agriculture
Week 15 (April 8-13)	Class Mammals: Characters and economic importance of mammals
Week 16 (April 15-20)	Revision
Week 17 (April 22- 30)	Revision


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Lesson Plan (2023-24) EVEN Semester

CLASS: BSc (Medical) Semester IV & 5 Year
Integrated MSc (Forensic Science) Semester IV

SUBJECT: Zoology (Papers I & II)

Week 1 (January 1-6)	Amphibia: Origin, Evolutionary tree. Type study of frog (<i>Rana tigrina</i>), Parental Care in Amphibia
Week 2 (January 8-13)	Reptilia: Type study of Lizard (<i>Hemidactylus</i>), Origin, Evolutionary tree. Extinct reptiles; Poisonous and non-poisonous snakes; Poison apparatus in snakes.
Week 3 (January 15-20)	Aves: Type study of Pigeon (<i>Columba livia</i>); Flight adaptation, Principles of aerodynamics in Bird flight, migration in birds.
Week 4 (January 22-27)	Mammals: Classification, type study of Rat; Adaptive radiations of mammals dentition.
Week 5 (January 29-February 3)	Circulation: Origin, conduction and regulation of heart beat, cardiac cycle, electrocardiogram, cardiac output, fluid pressure and flow pressure in closed and open circulatory system.
Week 6 (February 5-10)	Circulation: Composition and function of blood and lymph; Mechanism of coagulation of blood, coagulation factors, anticoagulants, haematopoiesis.
Week 7 (February 12-17)	Respiration: Exchange of respiratory gases, transport of gases, lung air volumes, oxygen dissociation curve of haemoglobin.
Week 8 (February 19-23)	Respiration: Bohr's effect, Haldane's phenomenon, control/ regulation of respiration
Week 9 (February 26 - March 2)	Excretion: Patterns of excretory products viz. Amotelic, ureotelic uricotelic, ornithine cycle (Kreb's – Henseleit cycle) for urea formation in liver.
Week 10 (March 4-9)	Excretion: Urine formation, counter-current mechanism of urine concentration, osmoregulation, micturition.
Week 11 (March 11-16)	Neural Integration: Nature, origin and propagation of nerve impulse alongwith medullated & non-medullated nerve fibre, conduction of nerve impulse across synapse.
Week 12 (March 18-22)	Chemical integration of Endocrinology: Structure and mechanism of hormone action.
Week 13 (March 23-31)	Holi Break
Week 14 (April 1-6)	Chemical integration of Endocrinology: Physiology of hypothalamus, pituitary, thyroid, parathyroid, adrenal, pancreas and gonads
Week 15 (April 8-13)	Reproduction: Spermatogenesis, Capacitation of spermatozoa, ovulation, formation of corpus luteum, oestrous-anoestrous cycle.
Week 16 (April 15-20)	Reproduction: Menstrual cycle in human; fertilization, implantation and gestation..
Week 17 (April 22- 30)	Revision


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Lesson Plan (2023-24) EVEN Semester

CLASS: BSc (Medical) Semester VI & 5 Year
Integrated MSc (Forensic Science) Semester VI

SUBJECT: Zoology (Papers I & II)

Week 1 (January 1-6)	Introduction to world fisheries: Production, utilization and demand. Fresh Water fishes of India: River system, reservoir, pond, tank fisheries; captive and culture fisheries, cold water fisheries.
Week 2 (January 8-13)	Fishing crafts and gears. Fin fishes, Crustaceans, Molluscs and their culture.
Week 3 (January 15-20)	Study of important insect pests of crops and vegetables: Pests of Sugarcane: Sugarcane leaf-hopper, Sugarcane Whitefly, Sugarcane top borer, Sugarcane root borer, Gurdaspur borer with their systematic position, habits and nature of damage cause. Life cycle and control of <i>Pyrilla perpusilla</i> only.
Week 4 (January 22-27)	Pests of Cotton: Pink bollworm, Red cotton bug, Cotton grey weevil, with their systematic position, habits and nature of damage caused.
Week 5 (January 29-February 3)	Pests of Cotton: Cotton jassid, with their systematic position, habits and nature of damage caused. Life cycle and control of <i>Pectinophora gossypiella</i> .
Week 6 (February 5-10)	Pests of Paddy: Gundhi bug, Rice Grasshopper, Rice Stem borer, Rice Hispa. Their systematic position, habits and nature of damage caused.
Week 7 (February 12-17)	Pests of Vegetables: Red pumpkin beetle, The pumpkin Fruit fly, The vegetables mites, The Hadda beetle. Their systematic position, habits and nature of damage caused.
Week 8 (February 19-23)	Life cycle and control of <i>Aulacophora faveicollis</i> . Seed production: Natural seed resources – its assessment, collection, Hatchery production.
Week 9 (February 26 - March 2)	Nutrition: Sources of food (Natural, Artificial) and feed composition (Calorie and Chemical ingredients).
Week 10 (March 4-9)	Field Culture: Ponds-running water, recycled water, cage, culture; poly culture. Biotechnology, gene manipulation and cryopreservation of gametes.
Week 11 (March 11-16)	Stored Grain: Pulse beetle, The rice weevil, Wheat weevil, Rust Red flour beetle. Their systematic position, habits and nature of damage caused.
Week 12 (March 18-22)	Stored Grain: Lesser Grain borer, Grain and Flour moth. Their systematic position, habits and nature of damage caused. Life cycle and control of <i>Trogoderma granarium</i> .
Week 13 (March 23-31)	Holi Break
Week 14 (April 1-6)	Insect control: Biological control, its history, requirement and precautions and feasibility of biological agents for control.
Week 15 (April 8-13)	Chemical control: History, Categories of pesticides. Important pesticides from each category to pests against which they can be used.
Week 16 (April 15-20)	Insect repellents and attractants. Integrated pest management. Important bird and rodent pests of agriculture & their management.
Week 17 (April 22- 30)	Revision


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