

**DYAL SINGH COLLEGE
KARNAL**

DEPARTMENT OF ZOOLOGY

Lesson Plans

Session: 2022-23

**ODD
SEMESTERS**


DYAL SINGH COLLEGE, KARNAL

LESSON PLAN (2022-23)

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

SUBJECT: Zoology (Papers I & II)

MONTH	DATE	TOPICS TO BE COVERED
September	Sept. 01-03, 2022	Protozoa: General characters and classification up to order level. Biodiversity and economic importance.
	Sept. 05-10, 2022	Type study of <i>Plasmodium</i> , Parasitic protozoans: Life history, mode of infection and pathogenicity of <i>Entamoeba</i> , <i>Trypanosoma</i> , <i>Leishmania</i> and <i>Giardia</i> .
	Sept. 12-17, 2022	Porifera: General characters and classification up to order level. Biodiversity and economic importance
	Sept. 19-24, 2022	Type study – <i>Sycon</i> , Canal system in sponges
	Sept. 27-Oct. 01, 2022	Spicules in sponges, Coelenterata: General characters and classification up to order level. Biodiversity, economic importance of Coelenterata.
October	Oct. 03-08, 2022	Type Study – <i>Obelia</i> , Corals and coral reefs.
	Oct. 10-15, 2022	Polymorphism in Siphonophores Helminths: General characters and classification up to order level, Biodiversity, Economic Importance
	Oct. 17-21, 2022	Type study – <i>Fasciola hepatica</i> , Helminths parasites: Brief account of life history, mode of infection and pathogenesis of <i>Schistosoma</i> , <i>Ancylostoma</i> , <i>Trichinella</i> , <i>Wuchereria</i> and <i>Oxyuris</i> .
	Oct. 27-29, 2022	Plasma membrane: Fluid mosaic model, various modes of transport across the membrane
November	Oct. 31-Nov. 05, 2022	Mechanism of active and passive transport, endocytosis and exocytosis, Ribosomes: Types, biogenesis and role in protein synthesis.
	Nov. 07-12, 2022	Endoplasmic reticulum (ER): types, role of ER in protein synthesis and transportation in animal cell.
	Nov. 14-19, 2022	Golgi complex: Structure, Associated enzymes and role of Golgi-complex in animal cell.
	Nov. 21-26, 2022	Lysosomes: structure, enzyme and their role; polymorphism. Mitochondria: Mitochondrial DNA; as semiautonomous body, biogenesis, mitochondrial enzymes (only names), role of mitochondria.
	Nov. 28-Dec. 03, 2022	Cytoskeleton: Microtubules, microfilaments, centriole and basal body. Cilia and Flagella.
December	Dec. 05-10, 2022	Ultrastructure and functions of Nucleus: Nuclear membrane, nuclear lamina, nucleolus, fine structure of chromosomes, nucleosome concept and role of histones. Euchromatin and heterochromatin, lampbrush chromosomes and polytene chromosomes.
	Dec. 12-17, 2022	Mitosis. Meiosis (Cell reproduction). Brief account of causes of cancer. An elementary idea of cellular basis of Immunity.
	Dec. 19-24, 2022	Revision
		Examination


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DYAL SINGH COLLEGE, KARNAL

Lesson Plan (2022-23)

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

SUBJECT: Zoology (Papers I & II)

MONTH	DATE	TOPICS TO BE COVERED
September	Sept. 01-03, 2022	Chordates: Origin and Evolutionary tree. Protochordates: Systematic position, distribution, ecology, morphology and affinities.
	Sept. 05-10, 2022	Urochordata: <i>Herdmania</i> - type study,
	Sept. 12-17, 2022	Cephalochordata, <i>Amphioxus</i> – type study
	Sept. 19-24, 2022	Cyclostomes: Type study of <i>Petromyzon</i> .
	Sept. 27-Oct. 01, 2022	Pisces: Scales & Fins, Parental care in fishes, fish migration.
October	Oct. 03-08, 2022	Types study of <i>Labeo</i>
	Oct. 10-15, 2022	Introduction, Classification, Structure, function and general properties of proteins, carbohydrates and lipids.
	Oct. 17-21, 2022	Nomenclature, Classification and mechanisms of enzyme action.
	Oct. 27-29, 2022	Transport through Biomembrane (passive and active Transport), Buffers.
November	Oct. 31-Nov. 05, 2022	Nutrition: Nutritional components; Carbohydrates, fats, lipids, Vitamins and Minerals.
	Nov. 07-12, 2022	Types of nutrition & feeding, Digestion of dietary constituents, viz. lipids, proteins,
	Nov. 14-19, 2022	Carbohydrates & nucleic acids; symbiotic digestion. Absorption of nutrients & assimilation; control of enzyme secretion
	Nov. 21-26, 2022	Muscles: Types of muscles, ultra-structure of skeletal muscle. Bio-chemical and physical events during muscle contraction; Single muscle twitch,
	Nov. 28-Dec. 03, 2022	Tetanus, muscle fatigue muscle, tone, oxygen debt., Cori's cycle, Single unit smooth muscles, their physical and functional properties.
December	Dec. 05-10, 2022	Bones: Structure and types, classification, Bone growth and resorption,
	Dec. 12-17, 2022	Effect of ageing on Skeletal system and bone disorders.
	Dec. 19-24, 2022	Revision
		Examination


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Lesson Plan (2022-23)

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

SUBJECT: Zoology (Papers I & II)

MONTH	DATE	TOPICS TO BE COVERED
September	Sept. 01-03, 2022	Basic concepts of ecology: Definition, signification. Concepts of habitat and ecological niche.
	Sept. 05-10, 2022	Factors affecting environment: Abiotic factors (light-intensity, quality and duration), temperature, humidity, topography; edaphic factors; Biotic factors.
	Sept. 12-17, 2022	Introduction to major ecosystem of the world. Ecosystem: Concept, components, properties and functions.
	Sept. 19-24, 2022	Ecological energetics and energy flow-food chain, food web, Trophic structure; ecological pyramids concept of productivity.
	Sept. 27-Oct. 01, 2022	Biogeochemical cycles: Concept, reservoir pool, gaseous cycles and sedimentary cycles.
October	Oct. 03-08, 2022	Population: Growth and regulation. Concept of biodiversity and conservation of natural resources. Migration in fishes and birds.
	Oct. 10-15, 2022	Parental care in animals. Population interactions: Competition, predation, parasitism, commensalisms and mutualism.
	Oct. 17-21, 2022	Environmental Pollution: Air, water, soil and management strategies.
	Oct. 27-29, 2022	Origin of life. Concept and evidences of organic evolution.
November	Oct. 31-Nov. 05, 2022	Theories of organic evolution. Concept of micro, macro-and mega-evolution.
	Nov. 07-12, 2022	Concept of species. Phylogeny of horse. Evolution of man.
	Nov. 14-19, 2022	Historical perspectives, aims and scope of developmental biology. Generalized structure of mammalian ovum & sperm, spermatogenesis and Oogenesis
	Nov. 21-26, 2022	Fertilization, parthenogenesis, different types of eggs and patterns of cleavage.
	Nov. 28-Dec. 03, 2022	Process of blastulation and fate-map construction in frog and chick. Gastrulation in frog and chick up to the formation of three germinal layers.
December	Dec. 05-10, 2022	Elementary knowledge of primary organizers. Elementary knowledge of extra embryonic membranes.
	Dec. 12-17, 2022	Concepts of competence, determination and differentiation. Concept of regeneration.
	Dec. 19-24, 2022	Revision
		Examination


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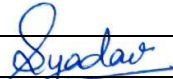
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LESSON PLAN (2022-23)

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

SUBJECT: Zoology (Papers I & II)

MONTH	DATE	TOPICS TO BE COVERED
January	Jan. 27-28, 2023	Annelida: General characters and classification up to order level, Biodiversity and economic importance, Type study <i>Pheretima</i> (Earthworm)
	Jan. 30-Feb. 4, 2023	Metamerism in Annelida, Trochophore larva Arthropoda: General characters and classification up to order level,
February	Feb. 6-11, 2023	Biodiversity and economic importance of insects, Type study – <i>Grasshopper</i>
	Feb. 13-18, 2023	Mollusca: General characters and classification up to order level, Biodiversity and economic importance,
	Feb 20 - 25, 2023	Type study of <i>Pila</i> , Torsion and Detorsion of Gastropodes, Respiration and foot
	Feb 27- Mar. 4, 2023	Enchinodermata: General Character and classification up to order level, Biodiversity and economic importance,
March	March 13-18, 2023	Type Study of sea star, Echinoderm Larvae, Aristotle Lanterns
	March 20-25, 2023	Hemichordate: General Character; Type Study of <i>Ballanglosus</i>
	Mar. 27-Apr. 1, 2023	Elements of Heredity and variations . The varieties of gene interactions. Linkage and Recombination: Coupling and repulsion hypothesis, crossing-over and chiasma formation; gene mapping.
April	April 3-8, 2023	Sex determination and its mechanism: male and female heterozygous systems, genetic balance system; role of Y-chromosome, male haploidy, cytoplasmic and environmental factors, role of hormones in sex determination
	April 10-15, 2023	Sex linked inheritance: Haemophilia and colour blindness in man, eye colour in Drosophila, Non-disjunction of sex-chromosome in Drosophila; Sex-linked and sex-influenced inheritance
	April, 17-22, 2023	Extra chromosomal and cytoplasmic inheritance: Kappa particles in Paramecium, Shell coiling in snails. Milk factor in mice. Multiple allelism: Eye colour in Drosophila; A, B, O blood group in man.
	April 24-29, 2023	Human genetics: Human karyotype, Chromosomal abnormalities involving autosomes and sex chromosomes, monozygotic and dizygotic twins. Inborn errors of metabolism (Alcaptonuria, Phenylketonuria, Albinism, sickle-cell anaemia).
May	May 1-6, 2023	Nature and function of genetic material: Structure and type of nucleic acids; Protein synthesis. Eugenics, eugenics and euphenics; spontaneous and induced (chemical and radiations).
	May 8-13, 2023	Mutations; gene mutations; chemical basis of mutations; transition, transversion, structural chromosomal aberrations (deletion, duplication, inversion and translocation);
	May 15-20, 2023	Numerical aberrations (autopolyploidy, euploidy and polyploidy in animals), Applied genetics: genetic counseling, pre-natal diagnostics, DNA-finger printing, transgenic animals.
	May 22-26, 2023	Revision
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LESSON PLAN (2022-23)

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

SUBJECT: Zoology (Papers I & II)

Month	Date	Topics to be covered
January	Jan. 27-28, 2023	Amphibia: Origin, Evolutionary tree.
	Jan. 30-Feb. 4, 2023	Type study of frog (<i>Rana tigrina</i>), Parental Care in Amphibia,
February	Feb. 6-11, 2023	Reptilia: Type study of Lizard (<i>Hemidactylus</i>),
	Feb. 13-18, 2023	Origin, Evolutionary tree. Extinct reptiles; Poisonous and non-poisonous snakes; Poison apparatus in snakes.
	Feb 20 - 25, 2023	Aves: Type study of Pigeon (<i>Columba livia</i>); Flight adaptation,
	Feb 27- Mar. 4, 2023	Principles of aerodynamics in Bird flight, migration in birds.
March	March 13-18, 2023	Mammals: Classification, type study of Rat;
	March 20-25, 2023	Adaptive radiations of mammals, Dentition.
	Mar. 27-Apr. 1, 2023	Circulation: Origin, conduction and regulation of heart beat, cardiac cycle, electrocardiogram, cardiac output, fluid pressure and flow pressure in closed and open circulatory system; Composition and functions of blood & lymph;
April	April 3-8, 2023	Mechanism of coagulation of blood, coagulation factors; anticoagulants, haemopoiesis. Respiration: Exchange of respiratory gases, transport of gases, lung air volumes,
	April 10-15, 2023	Oxygen dissociation curve of hemoglobin, Bohr's effect, Haburger's phenomenon (Chloride shift), control / regulation of respiration.
	April, 17-22, 2023	Urine formation, counter-current mechanism of urine concentration, osmoregulation, micturition.
	April 24-29, 2023	Excretion: Patterns of excretory products viz. Amonotelic, ureotelic, uricotelic, ornithine cycle (Kreb's – Henseleit cycle) for urea formation in liver.
May	May 1-6, 2023	Chemical integration of Endocrinology: Structure and mechanism of hormone action; physiology of hypothalamus, pituitary, thyroid, parathyroid, adrenal, pancreas and gonads.
	May 8-13, 2023	Reproduction: Spermatogenesis, Capacitation of spermatozoa, ovulation, formation of corpus luteum, oestrous-anoestrous cycle, Menstrual cycle in human; fertilization, implantation and gestation.
	May 15-20, 2023	Neural Integration: Nature, origin and propagation of nerve impulse along with medullated & non-medullated nerve fibre, conduction of nerve impulse across synapse.
	May 22-26, 2023	Revision
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LESSON PLAN (2022-23)

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

SUBJECT: Zoology (Papers I & II)

MONTH	DATE	TOPICS TO BE COVERED
January	Jan. 27-28, 2023	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.
	Jan. 30-Feb. 4, 2023	Fishing crafts and gears. Fin fishes, Crustaceans, Molluscs and their culture.
February	Feb. 6-11, 2023	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.
	Feb. 13-18, 2023	Pests of Cotton: Pink bollworm, Red cotton bug, Cotton grey weevil, with their systematic position, habits and nature of damage caused.
	Feb 20 - 25, 2023	Pests of Cotton: Cotton jassid, with their systematic position, habits and nature of damage caused. Life cycle and control of <i>Pectinophore gossypiella</i> .
	Feb 27- Mar. 4, 2023	Pests of Paddy: Gundhi bug, Rice Grasshopper, Rice Stem borer, Rice Hispa. Their systematic position, habits and nature of damage caused.
March	March 13-18, 2023	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.
	March 20-25, 2023	Life cycle and control of <i>Aulacophora faveicollis</i> . Seed production: Natural seed resources – its assessment, collection, Hatchery production.
	Mar. 27-Apr. 1, 2023	Nutrition: Sources of food (Natural, Artificial) and feed composition (Calorie and Chemical ingredients).
April	April 3-8, 2023	Field Culture: Ponds-running water, recycled water, cage, culture; poly culture. Biotechnology, gene manipulation and cryopreservation of gametes.
	April 10-15, 2023	Stored Grain: Pulse beetle, The rice weevil, Wheat weevil, Rust Red flour beetle. Their systematic position, habits and nature of damage caused.
	April, 17-22, 2023	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> .
	April 24-29, 2023	Insect control: Biological control, its history, requirement and precautions and feasibility of biological agents for control.
May	May 1-6, 2023	Chemical control: History, Categories of pesticides. Important pesticides from each category to pests against which they can be used.
	May 8-13, 2023	Insect repellants and attractants. Integrated pest management. Integrated pest management.
	May 15-20, 2023	Important bird and rodent pests of agriculture & their management.
	May 22-26, 2023	Revision
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