

**DYAL SINGH COLLEGE
KARNAL**

DEPARTMENT OF ZOOLOGY

Lesson Plans

Session: 2020-21

**ODD
SEMESTERS**


DYAL SINGH COLLEGE, KARNAL

LESSON PLAN (2020-21)

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

SUBJECT: Zoology (Papers I & II)

MONTH	DATE	TOPICS TO BE COVERED
November	Nov 2-7, 2020	Protozoa: General characters and classification up to order level. Biodiversity and economic importance.
	Nov 9-14, 2020	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> .
	Nov. 16-21, 2020	Porifera: General characters and classification up to order level. Biodiversity and economic importance
	Nov. 23-28, 2020	Type study – <i>Sycon</i> , Canal system in sponges
	Nov 30- Dec. 5, 2020	Spicules in sponges, Coelenterata: General characters and classification up to order level. Biodiversity, economic importance of Coelenterata.
December	Dec 7-12, 2020	Type Study – <i>Obelia</i> , Corals and coral reefs.
	Dec. 14-19, 2020	Polymorphism in Siphonophores Helminths: General characters and classification up to order level, Biodiversity, Economic Importance
	Dec 21-26, 2020	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> .
	Dec. 28 2020 - Jan 2, 2021	Plasma membrane: Fluid mosaic model, various modes of transport across the membrane
January	Jan 4-9, 2021	Mechanism of active and passive transport, endocytosis and exocytosis, Endoplasmic reticulum (ER): types, role of ER in protein synthesis and transportation in animal cell.
	Jan. 11-16, 2021	Golgi complex: Structure, Associated enzymes and role of Golgi-complex in animal cell. Ribosomes: Types, biogenesis and role in protein synthesis.
	Jan 18-23, 2021	Lysosomes: structure, enzyme and their role; polymorphism. Mitochondria: Mitochondrial DNA; as semiautonomous body, biogenesis, mitochondrial enzymes (only names), role of mitochondria.
	Jan 25-30, 2021	Cytoskeleton: Microtubules, microfilaments, centriole and basal body. Cilia and Flagella.
February	Feb 1-6, 2021	Ultrastructure and functions of Nucleus: Nuclear membrane, nuclear lamina, nucleolus, fine structure of chromosomes, nucleosome concept and role of histones.
	Feb 8-13, 2021	Euchromatin and heterochromatin, lampbrush chromosomes and polytene chromosomes. Mitosis
	Feb 15-20, 2021	Meiosis (Cell reproduction). Brief account of causes of cancer. An elementary idea of cellular basis of Immunity.
		Examination


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DYAL SINGH COLLEGE, KARNAL

Lesson Plan (2020-21)

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

SUBJECT: Zoology (Papers I & II)

MONTH	DATE	TOPICS TO BE COVERED
November	Nov 2-7, 2020	Chordates: Origin and Evolutionary tree. Protochordates: Systematic position, distribution, ecology, morphology and affinities.
	Nov 9-14, 2020	Urochordata: <i>Herdmania</i> - type study,
	Nov. 16-21, 2020	Cephalochordata, <i>Amphioxus</i> – type study
	Nov. 23-28, 2020	Cyclostomes: Type study of <i>Petromyzon</i> .
	Nov 30- Dec. 5, 2020	Pisces: Scales & Fins, Parental care in fishes, fish migration.
December	Dec 7-12, 2020	Types study of <i>Labeo</i>
	Dec. 14-19, 2020	Introduction, Classification, Structure, function and general properties of proteins, carbohydrates and lipids.
	Dec 21-26, 2020	Nomenclature, Classification and mechanisms of enzyme action.
	Dec. 28 2020 - Jan 2, 2021	Transport through Biomembrane (passive and active Transport), Buffers.
January	Jan 4-9, 2021	Nutrition: Nutritional components; Carbohydrates, fats, lipids, Vitamins and Minerals.
	Jan. 11-16, 2021	Types of nutrition & feeding, Digestion of dietary constituents, viz. lipids, proteins,
	Jan 18-23, 2021	Carbohydrates & nucleic acids; symbiotic digestion.
	Jan 25-30, 2021	Absorption of nutrients & assimilation; control of enzyme secretion Muscles: Types of muscles, ultra-structure of skeletal muscle.
February	Feb 1-6, 2021	Bio-chemical and physical events during muscle contraction; Single muscle twitch, tetanus, muscle fatigue muscle, tone, oxygen debt., Cori's cycle
	Feb 8-13, 2021	Single unit smooth muscles, their physical and functional properties. Bones: Structure and types, classification,
	Feb 15-20, 2021	Bone growth and resorption, Effect of ageing on Skeletal system and bone disorders.
		Examination


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Lesson Plan (2020-21)

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

SUBJECT: Zoology (Papers I & II)

MONTH	DATE	TOPICS TO BE COVERED
November	Nov 2-7, 2020	Basic concepts of ecology: Definition, signification. Concepts of habitat and ecological niche.
	Nov 9-14, 2020	Factors affecting environment: Abiotic factors (light-intensity, quality and duration), temperature, humidity, topography; edaphic factors; Biotic factors.
	Nov. 16-21, 2020	Introduction to major ecosystem of the world. Ecosystem: Concept, components, properties and functions.
	Nov. 23-28, 2020	Ecological energetics and energy flow-food chain, food web, Trophic structure; ecological pyramids concept of productivity.
	Nov 30- Dec. 5, 2020	Biogeochemical cycles: Concept, reservoir pool, gaseous cycles and sedimentary cycles.
December	Dec 7-12, 2020	Population: Growth and regulation. Concept of biodiversity and conservation of natural resources. Migration in fishes and birds.
	Dec. 14-19, 2020	Parental care in animals. Population interactions: Competition, predation, parasitism, commensalisms and mutualism.
	Dec 21-26, 2020	Environmental Pollution: Air, water, soil and management strategies.
	Dec. 28 2020 - Jan 2, 2021	Origin of life. Concept and evidences of organic evolution.
January	Jan 4-9, 2021	Theories of organic evolution. Concept of micro, macro-and mega-evolution.
	Jan. 11-16, 2021	Concept of species. Phylogeny of horse.
	Jan 18-23, 2021	Evolution of man. Historical perspectives, aims and scope of developmental biology.
	Jan 25-30, 2021	Generalized structure of mammalian ovum & sperm, spermatogenesis and Oogenesis
February	Feb 1-6, 2021	Fertilization, parthenogenesis, different types of eggs and patterns of cleavage.
	Feb 8-13, 2021	Process of blastulation and fate-map construction in frog and chick. Gastrulation in frog and chick up to the formation of three germinal layers.
	Feb 15-20, 2021	Elementary knowledge of primary organizers. Elementary knowledge of extra embryonic membranes. Concepts of competence, determination and differentiation. Concept of regeneration.
		Examination


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LESSON PLAN (2020-21)

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

SUBJECT: Zoology (Papers I & II)

MONTH	DATE	TOPICS TO BE COVERED
April	April 15-17, 2021	Annelida: General characters and classification up to order level, Biodiversity and economic importance, Type study <i>Pheretima</i> (Earthworm). Metamerism in Annelida, Trochophore larva
	April 19-24, 2021	Arthropoda: General characters and classification up to order level, Biodiversity and economic importance of insects, Type study – Grasshopper
	April 26- May 1, 2021	Mollusca: General characters and classification up to order level, Biodiversity and economic importance, Type study of <i>Pila</i> , Torsion and Detorsion of Gastropodes, Respiration and foot
May	May 3-8, 2021	Echinodermata: General Character and classification up to order level, Biodiversity and economic importance, Type Study of sea star, Echinoderm Larvae, Aristotle Lanterns
	May 10-15, 2021	Hemichordate: General Character; Type Study of <i>Ballanglosus</i> . Elements of Heredity and variations . The varieties of gene interactions.
	May 17-22, 2021	Linkage and Recombination: Coupling and repulsion hypothesis, crossing-over and chiasma formation; gene mapping.
	May 24-29, 2021	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
	May 31- June 5, 2021	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
June	June 7-12, 2021	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.
	June 14-19, 2021	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).
	June 21-26, 2021	Nature and function of genetic material: Structure and type of nucleic acids; Protein synthesis. Eugenics, euthenics and euphenics; spontaneous and induced (chemical and radiations).
	June 28- July 3, 2021	Mutations; gene mutations; chemical basis of mutations; transition, transversion, structural chromosomal aberrations (deletion, duplication, inversion and translocation);
July	July 5-10, 2021	Numerical aberrations (autploidy, euploidy and polyploidy in animals), Applied genetics: genetic counseling, pre-natal diagnostics, DNA-finger printing, transgenic animals.
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LESSON PLAN (2020-21)

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

SUBJECT: Zoology (Papers I & II)

Month	Date	Topics to be covered
April	April 15-17, 2021	Amphibia: Origin, Evolutionary tree, Type study of frog (<i>Rana tigrina</i>), Parental Care in Amphibia
	April 19-24, 2021	Reptilia: Type study of Lizard (<i>Hemidactylus</i>), Origin, Evolutionary tree. Extinct reptiles; Poisonous and non-poisonous snakes; Poison apparatus in snakes.
	April 26- May 1, 2021	Aves: Type study of Pigeon (<i>Columba livia</i>); Flight adaptation, Principles of aerodynamics in Bird flight, migration in birds.
May	May 3-8, 2021	Mammals: Classification, type study of Rat; Adaptive radiations of mammals, Dentition.
	May 10-15, 2021	Circulation: Origin, conduction and regulation of heart beat, cardiac cycle, electrocardiogram, cardiac output, fluid pressure and flow pressure in closed and open circulatory system;
	May 17-22, 2021	Composition and functions of blood & lymph; Mechanism of coagulation of blood, coagulation factors; anticoagulants, haemopoiesis.
	May 24-29, 2021	Respiration: Exchange of respiratory gases, transport of gases, lung air volumes,
	May 31- June 5, 2021	Oxygen dissociation curve of hemoglobin, Bohr's effect, Haburger's phenomenon (Chloride shift), control / regulation of respiration.
June	June 7-12, 2021	Excretion: Urine formation, counter-current mechanism of urine concentration, osmoregulation, micturition.
	June 14-19, 2021	Patterns of excretory products viz. Amonotelic, ureotelic, uricotelic, ornithine cycle (Kreb's – Henseleit cycle) for urea formation in liver.
	June 21-26, 2021	Chemical integration of Endocrinology: Structure and mechanism of hormone action; physiology of hypothalamus, pituitary, thyroid, parathyroid, adrenal, pancreas and gonads.
	June 28- July 3, 2021	Reproduction: Spermatogenesis, Capacitation of spermatozoa, ovulation, formation of corpus luteum, oestrous-anoestrous cycle, Menstrual cycle in human; fertilization, implantation and gestation.
July	July 5-10, 2021	Neural Integration: Nature, origin and propagation of nerve impulse along with meddullated & non-medullated nerve fibre, conduction of nerve impulse across synapse.
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LESSON PLAN (2020-21)

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

SUBJECT: Zoology (Papers I & II)

MONTH	DATE	TOPICS TO BE COVERED
April	April 15-17, 2021	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. Fishing crafts and gears.
	April 19-24, 2021	Fin fishes, Crustaceans, Molluscs and their culture. Seed production: Natural seed resources – its assessment, collection, Hatchery production. Nutrition: Sources of food (Natural, Artificial) and feed composition (Calorie and Chemical ingredients).
	April 26- May 1, 2021	Field Culture: Ponds-running water, recycled water, cage, culture; poly culture. Biotechnology, gene manipulation and cryopreservation of gametes.
May	May 3-8, 2021	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.
	May 10-15, 2021	Pests of Cotton: Pink bollworm, Red cotton bug, Cotton grey weevil, Cotton jassid, with their systematic position, habits and nature of damage caused. Life cycle and control of <i>Pectinophore gossypiella</i> .
	May 17-22, 2021	Pests of Paddy: Gundhi bug, Rice Grasshopper, Rice Stem borer, Rice Hispa. Their systematic position, habits and nature of damage caused.
	May 24-29, 2021	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. Life cycle and control of <i>Aulacophora faveicollis</i> .
	May 31- June 5, 2021	Stored Grain: Pulse beetle, The rice weevil, Wheat weevil, Rust Red flour beetle. Their systematic position, habits and nature of damage caused.
	June	June 7-12, 2021
June	June 14-19, 2021	Insect control: Biological control, its history, requirement and precautions and feasibility of biological agents for control.
June	June 21-26, 2021	Chemical control: History, Categories of pesticides. Important pesticides from each category to pests against which they can be used.
June	June 28- July 3, 2021	Insect repellants and attractants. Integrated pest management. Integrated pest management.
July	July 5-10, 2021	Important bird and rodent pests of agriculture & their management.
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