ZOOLOGY DEPARTMENT
Lesson Plan 2025-26 (Odd Semester)

Class: B.Sc Second year (3rd Semester) Life Science
Nomenclature of paper: Major Zoology (Cell Biology and Genetics)
Teacher's Name: Dr. Radha Rathe

Week	Name of the Topic
July:28 to 30 Aug: 1 to 2	Plasma Membrane: Fluid mosaic model, transport across the membrane, mechanism of active and passive transport, endocytosis and exocytosis.
Aug: 3 to 8	Endoplasmic reticulum (ER): Types and its functions. Golgi complex: Structure and role of golgi-complex in animal cell.
Aug: 11 to 14	Ultrastructure and functions of Nucleus: nucleolus, nucleosome concept and role of histones, fine structure of chromosomes, **Revision and Test**
Aug: 18 to 23	Euchromatin and heterochromatin, lampbrush chromosomes and polytene chromosomes.Ribosomes: Types, and role in protein synthesis.
Aug: 25 to 30	Lysosomes: Structure, enzyme and their role; polymorphism.
Sept: 1 to 6	Mitochondria: Structure and role of mitochondria.
Sept: 8 to 13	Cytoskeleton: Microtubules, microfilaments, centriole and basal body, cilia and flagella. **Revision and Test**
Sept: 15 to 20	Mitosis and Meiosis, an elementary idea of cellular basis of Immunity.
Sept: 24 to 30	Elements of Heredity and variations, the varieties of gene interactions, Linkage and recombination. **Assignment and Report**
Oct: 1 to 6	Sex determination and its mechanism, Sex linked inheritance: Haemophilia and colour blindness in man.
Oct: 8 to 11,13	Extra chromosomal and cytoplasmic inheritance: Kappa particles in Paramecium. ii) Milk factor in mice Multiple allelism: Eye colour in Drosophila; A, B, O blood group in man. **Revision and Test**
Oct: 14 to 22 Oct.	**Diwali Vacations**
Oct: 23 to 25	Nature and function of genetic material. Structure and type of nucleic acids.
Oct:27 to 31	Gene mutations: spontaneous and induced (chemical and radiations) mutations; chemical basis of mutations; transition, transversion. Rapid DNA analyser.
Nov: 3 to 8	Chromosomal abnormalities involving autosomes and sex chromosomes : Structural chromosomal aberrations (deletion, duplication, inversion and Translocation.
Nov: 10 to 15	Numerical aberrations (autoploidy, euploidy and polyploidy in animals) Inborn errors of metabolism (Alcaptonuria, Phenylketonuria, Albinism, sickle-cell anaemia.
Nov: 17 & 18	**Revision**

ZOOLOGY DEPARTMENT
Lesson Plan 2025-26 (Odd Semester)

Class: B.Sc Second year (3rd Semester) Life Science
Nomenclature of paper: Skill Zoology (Microtomy)
Teacher's Name: Dr. Radha Rathee

Week	Name of the Topic Skill
July:28 to 30 Aug: 1 to 2	Microtomy:- Introduction, definition, History
Aug: 3 to 8	Applications in Biological Sciences.
Aug: 11 to 14	Types of microtomes- Rotary microtome, Sledge Microtome and Cryomicrotome.
Aug: 18 to 23	Collection and transportation of sample/specimens for histological examination. **Revision and Test**
Aug: 25 to 30	Basic concepts of fixation- Various types of fixatives used in microtomy.
Sept: 1 to 6	Process of fixation; Embedding-Block formation.
Sept: 8 to 13	Section Cutting: Paraffin section cutting ; Streching.
Sept: 15 to 20	Spreading the sections and attachment to the glass slides. **Revision and Test**
Sept: 24 to 30	Staining – Principle and procedure; Preparation of Stains and solvents.
Oct: 1 to 6	General Staining Procedures for Paraffin Embedded tissue.
Oct: 8 to 11,13	Nuclear Stains.
Oct: 14 to 22 Oct.	**Diwali Vacations**
Oct: 23 to 25	Cytoplasmic stains- Haematoxylin **Revision and Test**
Oct:27 to 31	Eosin staining, Mercury Bromophenol.
Nov: 3 to 8	Commonly used mountants in microtomy
Nov: 10 to 15	Blue staining; Toulidine Blue.
Nov: 17 & 18	**Revision**

	ZOOLOGY DEPARTMENT **Lesson Plan 2025-26 (Odd Semester)** **Class: B.Sc Second year (3rd Semester) Life Science** **Nomenclature of paper: Minor Zoology (DNA Fingerprinting)** **Teacher's Name: Dr. Anu Bhargava**
Week	**Name of the Topic Skill**
July:28 to 30 Aug: 1 to 2	DNA Profiling: Introduction, History of DNA Typing, human genetics – heredity.
Aug: 3 to 8	Alleles, mutations, molecular biology of DNA and RNA, DNA types
Aug: 11 to 14	DNA Polymorphism: VNTR, STR, SNP, Mt DNA, DNA Markers, sequence. **Revision and Test**
Aug: 18 to 23	Polymorphism. DNA typing systems- RELP analysis.
Aug: 25 to 30	PCR amplifications.
Sept: 1 to 6	DNA profiling methods: Sample collection and preservation for DNA profiling.
Sept: 8 to 13	DNA Extraction, Analysis of SNP, STR, Y-STR. Mitochondrial DNA, evaluation of results. **Revision and Test**
Sept: 15 to 20	Database, quality control, certification and accreditation.
Sept: 24 to 30	Forensic applications of DNA Profiling: Applications in disputed paternity cases, child swapping.
Oct: 1 to 6	Missing person's identity – civil immigrations, veterinary.
Oct: 8 to 11,13	wildlife and agriculture cases.
Oct: 14 to 22 Oct.	**Diwali Vacations**
Oct: 23 to 25	Legal perspectives – legal standards for admissibility of DNA profiling. **Revision and Test**
Oct:27 to 31	New and future technologies: DNA chips.
Nov: 3 to 8	Rapid DNA analyser.
Nov: 10 to 15	Imitations of DNA profiling.
Nov: 17 & 18	**Revision**

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Lesson Plan 2025-26 (Odd Semester)

Class: B.Sc Final year (5th Semester) Medical
Teacher's name- Dr. Mamta Khokhar, Dr Manju Chikkara
Nomenclature of paper-Fish and Fisheries, Ecology and Evolution
Subject-Zoology

Week	Name of the Topic
July:28 to 30 Aug: 1 to 2	Basic concepts of ecology: Definition, significance. Concepts of habitat and ecological niche. Factors affecting environment: Abiotic factors (light-intensity, quality and duration)
Aug: 3 to 8	Origin of life. Concept and evidences of organic evolution. Theories of organic evolution. Concept of microevolution and concept of species
Aug: 11 to 14	Temperature, humidity, topography; edaphic factors; biotic factors. **Revision and Test**
Aug: 18 to 23	Ecosystem: Concept, components, properties and functions.
Aug: 25 to 30	Ecological energetic and energy flow-food chain, food web, trophic structure; ecological pyramids concept of productivity.
Sept: 1 to 6	Concept of macro-and mega-evolution. Phylogeny of horse.
Sept: 8 to 13	Biogeochemical cycles: Concept, reservoir pool, gaseous cycles and sedimentary cycles. **Revision and Test**
Sept: 15 to 20	Population: Growth and regulation. Evolution of man.
Sept: 24 to 30	Introduction to world fisheries: Production, utilization and demand.
Oct: 1 to 6	Fresh Water fishes of India: River system, Reservoir, pond, tank fisheries.
Oct: 8 to 11,13	Captive and culture fisheries, cold water fisheries. **Revision and Test**
Oct: 14 to 22 Oct.	**Diwali Vacations**
Oct: 23 to 25	Fishing crafts and gears. Fin fish, Crustacean and Molluscs and their culture.
Oct:27 to 31	Seed production and Nutrition.
Nov: 3 to 8	Culture technology: Biotechnology, gene manipulation and cryopreservation of gametes.
Nov: 10 to 15	Field Culture: Ponds-running water, recycled water, cage, culture; poly culture.
Nov: 17 & 18	**Revision**

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Lesson Plan 2025-26 (Odd Semester)

Class: B.Sc First year (1st sem) Life Science
Subject-Zoology
Teacher's Name: Dr. Madhuri Kaushik
Nomenclature of paper: Animal Diversity – 1 (Major)

Week	Name of the Topic:
July:15to 19	Phylum- Protozoa -General characters and classification up to order level
July:21 to 26	Type study of Plasmodium;
July: 28 to 2 Aug	Parasitic protozoans: Life history, mode of infection and pathogenicity of Entamoeba,Trypanosoma
Aug: 3 to 8	Phylum- Porifera: General characters and classification up to order level
Aug: 11 to 14	Canal system and Spicules in sponges **Revision and Test**
Aug: 18 to 23	Phylum - Coelenterata: General characters and classification up to order level Corals and coral reefs
Aug: 25 to 30	Phylum - Helminths: General characters and classification up to order level
Sept: 1 to 6	Type study - Fasciola hepatica
Sept: 8 to 13	Helminths parasites: Brief account of life history, mode of infection and pathogenesity of Ancylostoma, Wuchereria.
Sept: 15 to 20	Phylum - Annelida: General characters and classification up to order level
Sept: 24 to 30	Phylum – Arthropoda: General characters and classification up to order level **Revision and Test**
Oct: 1 to 6	Type study – Periplaneta
Oct: 8 to 11,13	Phylum - Mollusca: General characters and classification up to order level
Oct: 14 to 22 Oct.	**Diwali Vacations**
Oct: 23 to 25	Torsion and detorsion in gastropoda
Oct:27 to 31	Phylum - Echinodermata:General characters and classification up to order level
Nov: 3 to 8	Type Study -Asteries (Sea Star) **Revision and Test**
Nov: 10 to 15	Phylum – Hemichordata:General characters
Nov: 17 & 18	**Revision**

ZOOLOGY DEPARTMENT

Lesson Plan 2025-26 (Odd Semester)

Class: B.Sc First year (1st sem) Life Science
Subject-Zoology
Teacher's Name: Dr. Madhuri Kaushik
Nomenclature of paper: Human Evolution (Minor)

Week	**Name of the Topic:**
July:15to 19	Origins of Evolutionary Thought: Linnaeus
July:21 to 26	Wallace: Theory of evolution by Natural Selection.
July: 28 to 2 Aug	Darwin: Theory of evolution by Natural Selection
Aug: 3 to 8	The forces of evolution
Aug: 11 to 14	The formation of species.
Aug: 18 to 23	Natural selection, Genetic drift,
Aug: 25 to 30	Gene flow, Founder effect. **Revision and Test**
Sept: 1 to 6	Human variation and race.
Sept: 8 to 13	Human adaptation.
Sept: 15 to 20	Life History. Primate sociality, social behavior and culture.
Sept: 24 to 30	**Revision and Test**
Oct: 1 to 6	In insight of the origin of sociality in humans.
Oct: 8 to 11,13	The hominin record. Early hominins.
Oct: 14 to 22 Oct.	**Diwali Vacations**
Oct: 23 to 25	The hominin record. Australopithecus
Oct:27 to 31	Evolution of Human behavior
Nov: 3 to 8	Neanderthals and contemporaries
Nov: 10 to 18	**Revision**

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Lesson Plan 2025-26 (Odd Semester)

Class: B.Sc First year (1st sem) Life Science
Subject-Zoology
Teacher's Name: Dr. Anu Bhargava
Nomenclature of paper: Apiculture (Skill)

Week	**Name of the Topic:**
July:15to 19	Apiculture meaning, definition scope and history
July:21 to 26	Status of Apiculture Industry in India
July: 28 to 2 Aug	Classification and Life Cycle of Honey Bee. Identification of Indigenous and exotic Honey bee species
Aug: 3 to 8	Cultivable species of Honey Bee with reference to India Social organization of honey bees: the castes- queen, drone and workers,
Aug: 11 to 14	Nesting behavior of Honey bees, Bee foraging, Seasonal management, swarming in Honey bees, **Revision and Test**
Aug: 18 to 23	Waggle dance, defense in honey bees
Aug: 25 to 30	Diseases and Enemies. of Bees, Control and Preventive measures.
Sept: 1 to 6	Role of Bees in cross pollination in horticulture and agriculture
Sept: 8 to 13	Methods of Artificial Bee keeping
Sept: 15 to 20	Equipments used in Bee keeping Industry
Sept: 24 to 30	Methods of extraction of Honey and other products **Revision and Test**
Oct: 1 to 6	Products of Apiculture Industry and their Uses -Honey, Bee Wax, Royal Jelly
Oct: 8 to 11,13	Bee Venom, Propolis and Pollen, Bee Keeping Industry: Present and future
Oct: 14 to 22 Oct.	**Diwali Vacations**
Oct: 23 to 25	Prospects of apiculture as self employment venture.
Oct:27 to 31	**Revision and Test**
Nov: 3 to 8	Economics of Apiculture: Expenditure, Net Income, and Additional benefits
Nov: 10 to 18	**Revision**