Teaching Plan For The Academic Year : 2023-2024

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
Dr. AESHNA NIGAM	B. Sc. (Hons.) Zoology I	NON-CHORDATES I: PROTISTA TO PSEUDOCOELOMATES	Odd Semester	None	August	Unit !	10
Dr. AESHNA NIGAM	B. Sc. (Hons.) Zoology I	NON-CHORDATES I: PROTISTA TO PSEUDOCOELOMATES	Odd Semester	None	September	Unit 3	25
Dr. AESHNA NIGAM	B. Sc. (Hons.) Zoology I	NON-CHORDATES I: PROTISTA TO PSEUDOCOELOMATES	Odd Semester	None	October	Unit 4	20
Dr. AESHNA NIGAM	B. Sc. (Hons.) Zoology I	NON-CHORDATES I: PROTISTA TO PSEUDOCOELOMATES	Odd Semester	None	November	Unit 5, Unit 2	25
Dr. AESHNA NIGAM	B. Sc. (Hons.) Zoology I	NON-CHORDATES I: PROTISTA TO PSEUDOCOELOMATES	Odd Semester	None	December	Unit 2	15
Dr. AESHNA NIGAM	B. Sc. (Hons.) Zoology V	ANIMAL BEHAVIOUR AND CHRONOBIOLOGY	Odd Semester	None	August	Unit 1	15
Dr. AESHNA NIGAM	B. Sc. (Hons.) Zoology V	ANIMAL BEHAVIOUR AND CHRONOBIOLOGY	Odd Semester	None	September	Unit 1, Unit 2	35
Dr. AESHNA NIGAM	B. Sc. (Hons.) Zoology V	ANIMAL BEHAVIOUR AND CHRONOBIOLOGY	Odd Semester	None	October	Unit 2, 3	25
Dr. AESHNA NIGAM	B. Sc. (Hons.) Zoology V	ANIMAL BEHAVIOUR AND CHRONOBIOLOGY	Odd Semester	None	November	Unit 3	20
Dr. AESHNA NIGAM	B. Sc. (Hons.) Zoology V	ANIMAL BEHAVIOUR AND CHRONOBIOLOGY	Odd Semester	None	December	Unit 3	5
Dr. AESHNA NIGAM	----	Sem. I - Zoology (Generic)	Odd Semester	None	September	Unit 7	15
Dr. AESHNA NIGAM	----	Sem. I - Zoology (Generic)	Odd Semester	None	October	Unit 6	30
Dr. AESHNA NIGAM	----	Sem. I - Zoology (Generic)	Odd Semester	None	November	Unit 5, 6	40
Dr. AESHNA NIGAM	----	Sem. I - Zoology (Generic)	Odd Semester	None	December	Unit 6	15
Dr. ANKITA	B. Sc.	PRINCIPLES OF	Odd	None	August	Unit 1: Mendelian Genetics & its	15

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
DUA	(Hons.) Zoology V	GENETICS	Semester			extension	
Dr. ANKITA DUA	B. Sc. (Hons.) Zoology V	PRINCIPLES OF GENETICS	Odd Semester	None	September	Unit 1: Mendelian Genetics & its extension; Unit 2: Linkage, Crossing Over and Chromosomal Mapping	40

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
Dr. ANKITA DUA	B. Sc. (Hons.) Zoology V	PRINCIPLES OF GENETICS	Odd Semester	None	October	Unit 2: Linkage, Crossing Over and Chromosomal Mapping; Unit 4: Sex Determination	25
Dr. ANKITA DUA	B. Sc. (Hons.) Zoology V	PRINCIPLES OF GENETICS	Odd Semester	None	November	Unit 4: Sex Determination	20

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
Dr. ANKITA DUA	B. Sc. Life Sciences I	ANIMAL DIVERSITY	Odd Semester	Section A	August	Salient features of protochordates and chordates	20
Dr. ANKITA DUA	B. Sc. Life Sciences I	ANIMAL DIVERSITY	Odd Semester	Section A	September	Retrogressive metamorphosis in protochordates, Osmoregulation, Migration, and Parental care in fishes	20
Dr. ANKITA DUA	B. Sc. Life Sciences I	ANIMAL DIVERSITY	Odd Semester	Section A	October	Parental care in Amphibians, Flight adaptations and Migration in birds, Biting mechanism in snakes, Origin of mammals	20
Dr. ANKITA DUA	B. Sc. Life Sciences I	ANIMAL DIVERSITY	Odd Semester	Section A	November	General features of coelomates, Metamerism in Annelida, Vision in Arthropoda	20
Dr. ANKITA DUA	B. Sc. Life Sciences I	ANIMAL DIVERSITY	Odd Semester	Section A	December	Metamorphosis in Insects	20
Dr. ANKITA DUA	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section A	August	Unit 1: Concept and Scope of Biotechnology	10

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
Dr. ANKITA DUA	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section A	September	Unit 2: Molecular Techniques in Gene manipulation Cloning vectors: Plasmids, Cosmids, Phagemids, Lambda Bacteriophage, M13, BAC, YAC, MAC and Expression vectors (characteristics); Restriction enzymes: Overview., Nomenclature, detailed study of Type II;	30
Dr. ANKITA DUA	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section A	October	DNA modification enzymes: Alkaline phosphatase, Terminal transferase, Reverse transcriptase, T4 DNA kinase, ligases CRISPR Cas-9 (as genome editing tool); Transformation techniques; Calcium chloride and electroporation method; Construction of genomic and cDNA libraries and screening by colony and plaque hybridization;	30

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
Dr. ANKITA DUA	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section A	November	cDNA library screening by immunological methods; Southern, Northern and Western blotting; DNA sequencing: Sanger and NGS (illumine) methods	30
Dr. DEEPIKA YADAV	B. Sc. (Hons.) Zoology V	IMMUNOLOGY	Odd Semester	None	August	Unit 1: Overview of Immune System: Historical Perspective & Early Theories, Clonal Selection	15
Dr. DEEPIKA YADAV	B. Sc. (Hons.) Zoology	IMMUNOLOGY	Odd Semester	None	September	Unit 1 Contd. Cardinal features of vertebrate immune system, Hematopoiesis, Cells and	40

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
	V					organs of the Immune system.	
Dr. DEEPIKA YADAV	B. Sc. (Hons.) Zoology V	IMMUNOLOGY	Odd Semester	None	October	Unit4: Immunoglobulins:Structure and functions of different classes of immunoglobulins, Antigenic determinants on Immunoglobulins, Antigen-antibody interactions (Precipitation reactions, Agglutination reactions, Immunofluorescence and ELISA), Polyclonal sera, Hybridoma technology: Monoclonal antibodies in therapeutics and diagnosis ,Unit8: Vaccines Introduction	25
Dr. DEEPIKA YADAV	B. Sc. (Hons.) Zoology V	IMMUNOLOGY	Odd Semester	None	November	Unit8: Vaccines Types,Unit9: Immune Dysfunction: Hypersensitivity: Gell and Coombs' classification and various types of hypersensitivities Autoimmunity: Brief account with reference to Hashimoto's Thyroiditis (Organ Specific) and Rheumatoid arthritis (Systemic).Immunodeficiency: Brief account with reference to SCID (Primary) and AIDS (Secondary)	20
Dr. JITENDRA KUMAR CHAUDHARY	B. Sc. (Hons.) Zoology III	HUMAN PHYSIOLOGY LIFE SUSTAINING SYSTEMS	Odd Semester	None	August	Digestion	25
Dr. JITENDRA KUMAR CHAUDHARY	B. Sc. (Hons.) Zoology III	HUMAN PHYSIOLOGY LIFE SUSTAINING SYSTEMS	Odd Semester	None	September	Digestion	25
Dr. JITENDRA KUMAR CHAUDHARY	B. Sc. (Hons.) Zoology III	HUMAN PHYSIOLOGY LIFE SUSTAINING SYSTEMS	Odd Semester	None	October	Respiratory System	25
Dr. JITENDRA KUMAR CHAUDHARY	B. Sc. (Hons.) Zoology III	HUMAN PHYSIOLOGY LIFE SUSTAINING SYSTEMS	Odd Semester	None	November	Respiratory system	25
Dr. JITENDRA KUMAR CHAUDHARY	B. Sc. (Hons.) Zoology V	MOLECULAR BIOLOGY	Odd Semester	None	August	Unit 1: Salient features of DNA and types of RNA (mRNA, rRNA and tRNA); Watson and Crick model of DNA	10
Dr. JITENDRA KUMAR CHAUDHARY	B. Sc. (Hons.) Zoology V	MOLECULAR BIOLOGY	Odd Semester	None	September	DNA replication in prokaryotes and eukaryotes – replication machinery and mechanisms, semi-conservative, bidirectional and semi-discontinuous replication, Replication of circular and linear double	20

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
						stranded DNA, Replication of telomeres.	
Dr. JITENDRA KUMAR CHAUDHARY	B. Sc. (Hons.) Zoology V	MOLECULAR BIOLOGY	Odd Semester	None	October	Machinery and mechanism of transcription in prokaryotes and eukaryotes-RNA polymerases, Transcription unit, Transcription factors, Synthesis of rRNA	16
Dr. JITENDRA KUMAR CHAUDHARY	B. Sc. (Hons.) Zoology V	MOLECULAR BIOLOGY	Odd Semester	None	November	Genetic code, Degeneracy of the genetic code and Wobble hypothesis; Process of protein synthesis in prokaryotes: Ribosome structure, fidelity of protein synthesis, aminoacyl-tRNA synthetases and charging of tRNA; Proteins involved in initiation, elongation and termination of polypeptide chain, Inhibitors of protein synthesis; Difference between prokaryotic and eukaryotic translation	20
Dr. JITENDRA KUMAR CHAUDHARY	B. Sc. (Hons.) Zoology V	IMMUNOLOGY	Odd Semester	None	August	Unit2: Cells and Organs of the Immune System 8hrs Hematopoiesis, Cells of immune system, primary and secondary lymphoid organs	13
Dr. JITENDRA KUMAR CHAUDHARY	B. Sc. (Hons.) Zoology V	IMMUNOLOGY	Odd Semester	None	September	Antigens and immunogens, antigenicity and immunogenicity, Factors affecting immunogenicity, Antigenic determinants (B and T cell epitopes), Concept of antigen recognition by B and T-cells, Adjuvants and haptens.	13
Dr. JITENDRA KUMAR CHAUDHARY	B. Sc. (Hons.) Zoology V	IMMUNOLOGY	Odd Semester	None	October	Unit 5:Major Histocompatibility Complex (MHC I and II) Structure and functions of MHC	10
Dr. JITENDRA KUMAR CHAUDHARY	B. Sc. (Hons.) Zoology V	IMMUNOLOGY	Odd Semester	None	November	Unit6: Complement System Components, alternate and classical pathway, biological consequences of complement activation; Unit 7: Cytokines Basic properties and functions of cytokines.	13
Dr. JITENDRA KUMAR CHAUDHARY	B. Sc. Life Sciences III	BIOCHEMISTRY BASIC CONCEPTS OF METABOLISM	Odd Semester	Section B	August	Unit 1. Metabolism of Carbohydrates	13
Dr. JITENDRA KUMAR CHAUDHARY	B. Sc. Life Sciences III	BIOCHEMISTRY BASIC CONCEPTS OF METABOLISM	Odd Semester	Section B	September	Unit 1. Metabolism of Carbohydrates	13
Dr. JITENDRA KUMAR CHAUDHARY	B. Sc. Life Sciences III	BIOCHEMISTRY BASIC CONCEPTS OF METABOLISM	Odd Semester	Section B	October	Unit 4. Enzyme	13

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Dr. JITENDRA KUMAR CHAUDHARY	B. Sc. Life Sciences III	BIOCHEMISTRY BASIC CONCEPTS OF METABOLISM	Odd Semester	Section B	November	Unit 4. Enzyme (few topics) and Unit 3. Protein Metabolism	27
Dr. NEETU SINGH	B. Sc. (Hons.) Zoology III	WILDLIFE CONSERVATION & MANAGEMENT	Odd Semester	None	September	UNIT- 5 Wildlife Health and Rehabilitation- Common diseases of wild animals: Zoonosis (Ebola and Salmonella),	25
Dr. NEETU SINGH	B. Sc. (Hons.) Zoology III	WILDLIFE CONSERVATION & MANAGEMENT	Odd Semester	None	October	UNIT- 5 Wildlife Health and Rehabilitation- Rabies, Foot and Mouth Disease, Care of injured and diseased animal; Quarantine,	25
Dr. NEETU SINGH	B. Sc. (Hons.) Zoology III	WILDLIFE CONSERVATION & MANAGEMENT	Odd Semester	None	November	UNIT- 6: Protected Areas and their management- National parks and Sanctuaries; Biosphere reserves; Conservation and Community reserve; Important features of Protected Areas in India, Project Tiger- conservation and management challenges in Tiger reserves; Human-wildlife conflict;	45
Dr. NEETU SINGH	B. Sc. (Hons.) Zoology III	WILDLIFE CONSERVATION & MANAGEMENT	Odd Semester	None	December	Eco-tourism	5
Dr. NEETU SINGH	B. Sc. Life Sciences I	DIVERSITY OF ANIMALS - NEP	Odd Semester	Section B	October	Unit II: Protista to Pseudocoelomates- Life cycle of Taenia solium Unit II- its Parasitic adaptations, Life cycle of Ascaris lumbricoides and its Parasitic adaptations.	30
Dr. NEETU SINGH	B. Sc. Life Sciences I	DIVERSITY OF ANIMALS - NEP	Odd Semester	Section B	November	Unit IV: Chordates- Salient features of protochordates and chordates, Retrogressive metamorphosis in protochordates,Osmoregulation, Migration, and Parental care in fishes, Parental care in Amphibians, Biting mechanism in snakes, Flight adaptations and Migration in birds	65
Dr. NEETU SINGH	B. Sc. Life Sciences I	DIVERSITY OF ANIMALS - NEP	Odd Semester	Section B	December	Origin of mammals	5
Dr. NEETU SINGH	B. Sc. Life Sciences	ANIMAL BIOTECHNOLOGY	Odd Semester	Section A	August	Unit3: Genetically Modified Organisms- Production of cloned and transgenic animals:	25

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
	V					Nuclear Transplantation (cloning of dolly as an example).	
Dr. NEETU SINGH	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section A	September	Retroviral Method, DNA microinjection. Applications of transgenic animals: Production of pharmaceuticals	25
Dr. NEETU SINGH	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section A	October	Unit4: Applications of Biotechnology- Molecular diagnosis of genetic diseases (Cystic fibrosis, Sickle cell anaemia) Recombinant DNA in medicines: Recombinant insulin and human growth hormone	25
Dr. NEETU SINGH	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section A	November	Unit4: Applications of Biotechnology- Meta-genomics: an introduction, Gene therapy. Unit3-Production of transgenic plants: Agrobacteriurn mediated transformation. Applications of transgenic plants: insect resistant plants, and edible vaccines and golden rice as examples	25
Dr. NEETU SINGH	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section B	August	Unit 2-Southern and Northern blotting	15
Dr. NEETU SINGH	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section B	September	Unit-2 Western blotting, Unit4: Applications of Biotechnology-	20
Dr. NEETU SINGH	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section B	October	Recombinant DNA in medicines: Recombinant insulin and human growth hormone, Molecular diagnosis of genetic diseases (Cystic fibrosis)	30
Dr. NEETU SINGH	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section B	November	Molecular diagnosis of genetic diseases (Sickle cell anaemia), Gene therapy	30
Dr. NEETU SINGH	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section B	December	Meta-genomics: an introduction	5
Dr. NEETU	----	Sem. III - Zoology	Odd	None	September	UNIT-1: Basic concept of food	25

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
SINGH		(Generic)	Semester			and nutrition- Components of nutrients (Macronutrients and Micronutrients), UNIT-2: Dietary sources and physiological functions- Carbohydrates,	
Dr. NEETU SINGH	----	Sem. III - Zoology (Generic)	Odd Semester	None	October	UNIT-2: Dietary sources and physiological functions- Carbohydrates, Proteins, Lipids Vitamins and Minerals (Iron, Iodine, Calcium, Selenium, Zinc); beneficial effects of dietary fibres; UNIT-3: Nutritional requirements- Study of different age groups (infants, preschool children, school children, adolescents, adults, elderly) and in pregnant women and lactating mother.	50
Dr. NEETU SINGH	----	Sem. III - Zoology (Generic)	Odd Semester	None	November	UNIT-4: Concept of a balanced diet- Food groups, Food Pyramid, Food and Culture; Food Hypersensitivity	15
Dr. NEETU SINGH	----	Sem. III - Zoology (Generic)	Odd Semester	None	December	Elementary idea of Probiotics, Prebiotics, Organic Food.	10
Dr. NIDHI GARG	B. Sc. (Hons.) Zoology III	DIVERSITY OF CHORDATES	Odd Semester	None	August	UNIT-I: Introduction to Chordates General characteristics and outline classification. UNIT-2: Protochordata General characteristics of Hemichordata, Urochordata and Cephalochordata; Study of Tornaria and Ascidian larval forms in protochordates.	20
Dr. NIDHI GARG	B. Sc. (Hons.) Zoology III	DIVERSITY OF CHORDATES	Odd Semester	None	September	UNIT-3: Origin of Chordates Theories of Origin of chordates with detailed concept of Dipleurula and the Echinoderm theory. UNIT-4: Agnatha General characteristics and classification of cyclostomes up to Class. UNIT- 5: Pisces General characteristics of Chondrichthyes and Osteichthyes; Classification up to order; Osmoregulation; Swimbladder in fishes	30
Dr. NIDHI GARG	B. Sc. (Hons.) Zoology III	DIVERSITY OF CHORDATES	Odd Semester	None	October	UNIT- 6: Amphibia General characteristics and classification up to order; Origin of Tetrapods (Evolution of terrestrial ectotherms); Parental	25

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
						care in Amphibians. UNIT-7: Reptilia General characteristics and classification up to order; Affinities and evolutionary significance of Sphenodon; Poison apparatus and biting mechanism in snakes.	
Dr. NIDHI GARG	B. Sc. (Hons.) Zoology III	DIVERSITY OF CHORDATES	Odd Semester	None	November	UNIT- 8: Aves General characteristics and classification up to order; Flight adaptations; Migration in birds. UNIT- 9: Mammalia General characteristics and classification up to order; Adaptive radiation with reference to locomotory appendages. UNIT- 10: Zoogeography Zoogeographical realms, Platetectonics and Continental drift theory.	25
Dr. NIDHI GARG	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section B	August	Unit 3: Genetically Modified Organisms Production of cloned and transgenic animals: Nuclear Transplantation (cloning of dolly as an example), Retroviral Method, DNA microinjection.	25
Dr. NIDHI GARG	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section B	September	Unit 3: Genetically Modified Organisms Applications of transgenic animals: Production of pharmaceuticals.	25
Dr. NIDHI GARG	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section B	October	Unit 3: Genetically Modified Organisms Production of transgenic plants: Agrobacterium mediated transformation.	25
Dr. NIDHI GARG	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section B	November	Unit 3: Genetically Modified Organisms Applications of transgenic plants: insect resistant plants, and edible vaccines and golden rice as examples.	25
Dr. NIDHI GARG	B. Sc. Life Sciences V	SERICULTURE - SEC (Zoology)	Odd Semester	Section B	August	Unit 1: Introduction Sericulture: Definition, history and present status; Silk route; Types of silkworms, Distribution and Races; Exotic and indigenous. Mulberry sericulture.	20
Dr. NIDHI GARG	B. Sc. Life Sciences	SERICULTURE - SEC (Zoology)	Odd Semester	Section B	September	Unit 1: Introduction Non-mulberry Sericulture, Eri, Muga, Tasar. Unit 2: Biology of	30

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
	V					Silkworm Life cycle of Bombyx mori; Structure of silk gland and secretion of silk; Composition and properties of silk. Unit 4: Pests and Diseases Pests of silkworm: Uzi fly, dermestid beetles and vertebrates; Pathogenesis of silkworm diseases: Protozoan, viral, fungal and bacterial; Control and prevention of pests and diseases.	
Dr. NIDHI GARG	B. Sc. Life Sciences V	SERICULTURE - SEC (Zoology)	Odd Semester	Section B	October	Unit 3: Rearing of Silkworms Selection of mulberry variety and establishment of mulberry garden. Rearing house and rearing appliances. Disinfectants: Formalin, bleaching powder, RKO. Silkworm rearing technology: Early age and Late age rearing. Types of mountages. Harvesting and storage of cocoons. Post-harvest technology– Silk reeling, Dyeing and Weaving, Ahimsa silk	25
Dr. NIDHI GARG	B. Sc. Life Sciences V	SERICULTURE - SEC (Zoology)	Odd Semester	Section B	November	Unit 5: Silk Industry and Its Importance Silk usage and application in Textile and non-textile industry. Unit 6: Entrepreneurship in Sericulture Prospectus of Sericulture in India: Sericulture industry in different states, Employment opportunities in mulberry and non-mulberry sericulture sector, Economics in small scale and large-scale silk worm rearing, Scope for women entrepreneurs in sericulture sector.	25
Dr. RAKESH ROSHAN	B. Sc. (Hons.) Zoology III	WILDLIFE CONSERVATION & MANAGEMENT	Odd Semester	None	September	Values of wildlife - positive and negative; Conservation ethics; Importance of conservation; Causes of depletion.	20
Dr. RAKESH ROSHAN	B. Sc. (Hons.) Zoology III	WILDLIFE CONSERVATION & MANAGEMENT	Odd Semester	None	October	Habitat analysis: a) Physical parameters: Topography, Geology, Soil and water; b) Biological Parameters: food, cover, forage; Standard evaluation procedures: Biotelemetry, Remotesensing and GIS.	30
Dr. RAKESH ROSHAN	B. Sc. (Hons.) Zoology III	WILDLIFE CONSERVATION & MANAGEMENT	Odd Semester	None	November	Setting back succession: Grazing, prescribed fire, mechanical treatment and selective herbicide application; Advancing the successional process and cover construction; Preservation of genetic	30

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
						diversity; Restoration of degraded habitats.	
Dr. RAKESH ROSHAN	B. Sc. (Hons.) Zoology III	WILDLIFE CONSERVATION & MANAGEMENT	Odd Semester	None	December	Faecal analysis of ungulates and carnivores: Faecal samples, slide preparation and hair, identification; Pug marks and census methods. Mycobacterium TB, Bovine and Avian Flu	20
Dr. RAKESH ROSHAN	B. Sc. (Hons.) Zoology V	ANIMAL BEHAVIOUR AND CHRONOBIOLOGY	Odd Semester	None	August	Historical developments in chronobiology; Biological oscillation: the concept of Average, amplitude, phase and period	20
Dr. RAKESH ROSHAN	B. Sc. (Hons.) Zoology V	ANIMAL BEHAVIOUR AND CHRONOBIOLOGY	Odd Semester	None	September	Adaptive significance of biological clocks, Characteristics of biological rhythms; Short- and Long-term rhythms; Circadian rhythms; Tidal rhythms and Lunar rhythms	30
Dr. RAKESH ROSHAN	B. Sc. (Hons.) Zoology V	ANIMAL BEHAVIOUR AND CHRONOBIOLOGY	Odd Semester	None	October	Concept of synchronization and masking; Photic and non-photic zeitgebers; Circannual rhythms;	25
Dr. RAKESH ROSHAN	B. Sc. (Hons.) Zoology V	ANIMAL BEHAVIOUR AND CHRONOBIOLOGY	Odd Semester	None	November	Photoperiod and regulation of seasonal reproduction of vertebrates; Role of melatonin. Relevance of biological clocks;	15
Dr. RAKESH ROSHAN	B. Sc. (Hons.) Zoology V	ANIMAL BEHAVIOUR AND CHRONOBIOLOGY	Odd Semester	None	December	Chronopharmacology, Chronomedicine, Chronotherapy	10
Dr. RAKESH ROSHAN	B. Sc. Life Sciences III	WILDLIFE CONSERVATION & MANAGEMENT	Odd Semester	Section A	September	Values of wildlife - positive and negative; Conservation ethics; Importance of conservation; Causes of depletion.	20
Dr. RAKESH ROSHAN	B. Sc. Life Sciences III	WILDLIFE CONSERVATION & MANAGEMENT	Odd Semester	Section A	October	Habitat analysis: a) Physical parameters: Topography, Geology, Soil and water; b) Biological Parameters: food, cover, forage; Standard evaluation procedures: Biotelemetry, Remotesensing and GIS.	30
Dr. RAKESH ROSHAN	B. Sc. Life Sciences III	WILDLIFE CONSERVATION & MANAGEMENT	Odd Semester	Section A	November	Setting back succession: Grazing, prescribed fire, mechanical treatment and selective herbicide application; Advancing the successional process and cover construction; Preservation of genetic diversity; Restoration of degraded habitats.	30
Dr. RAKESH ROSHAN	B. Sc. Life Sciences	WILDLIFE CONSERVATION & MANAGEMENT	Odd Semester	Section A	December	Faecal analysis of ungulates and carnivores: Faecal samples, slide preparation and hair,	20

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
	III					identification; Pug marks and census methods, Mycobacterium TB, Bovine and Avian Flu	
Dr. RAKESH ROSHAN	B. Sc. Life Sciences III	WILDLIFE CONSERVATION & MANAGEMENT	Odd Semester	Section B	September	Values of wildlife - positive and negative; Conservation ethics; Importance of conservation; Causes of depletion	20
Dr. RAKESH ROSHAN	B. Sc. Life Sciences III	WILDLIFE CONSERVATION & MANAGEMENT	Odd Semester	Section B	October	Habitat analysis: a) Physical parameters: Topography, Geology, Soil and water; b) Biological Parameters: food, cover, forage; Standard evaluation procedures: Biotelemetry, Remotesensing and GIS.	30
Dr. RAKESH ROSHAN	B. Sc. Life Sciences III	WILDLIFE CONSERVATION & MANAGEMENT	Odd Semester	Section B	November	Setting back succession: Grazing, prescribed fire, mechanical treatment and selective herbicide application; Advancing the successional process and cover construction; Preservation of genetic diversity; Restoration of degraded habitats.	30
Dr. RAKESH ROSHAN	B. Sc. Life Sciences III	WILDLIFE CONSERVATION & MANAGEMENT	Odd Semester	Section B	December	Faecal analysis of ungulates and carnivores: Faecal samples, slide preparation and hair, identification; Pug marks and census methods, Mycobacterium TB, Bovine and Avian Flu	20
Dr. RAKESH ROSHAN	----	Sem. I - Zoology (Generic)	Odd Semester	None	September	Values of wildlife - positive and negative; Conservation ethics; Importance of conservation; Causes of depletion;	20
Dr. RAKESH ROSHAN	----	Sem. I - Zoology (Generic)	Odd Semester	None	October	World conservation strategies: Wildlife Conservation Society (WCS), Convention on Biological Diversity (CBD), Agenda 21 of United Nations. Habitat analysis: a) Physical parameters: Topography, Geology, Soil and water;	40
Dr. RAKESH ROSHAN	----	Sem. I - Zoology (Generic)	Odd Semester	None	November	Biological Parameters: food, cover, forage; Census method Setting back succession: Grazing logging, Mechanical treatment,	30
Dr. RAKESH ROSHAN	----	Sem. I - Zoology (Generic)	Odd Semester	None	December	Advancing the successional process.	10
Dr. SUNITA GUPTA	B. Sc. (Hons.) Zoology I	CONCEPT OF ECOLOGY	Odd Semester	None	August	Unit 1 & Unit 5 (contd.)	13
Dr. SUNITA	B. Sc.	CONCEPT OF	Odd	None	September	unit 5 & unit 6	27

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
GUPTA	(Hons.) Zoology I	ECOLOGY	Semester				
Dr. SUNITA GUPTA	B. Sc. (Hons.) Zoology I	CONCEPT OF ECOLOGY	Odd Semester	None	October	unit 4 & unit 3(contd.)	30
Dr. SUNITA GUPTA	B. Sc. (Hons.) Zoology I	CONCEPT OF ECOLOGY	Odd Semester	None	November	unit 3 & unit 2	30
DR. TSEWANG NAMGIAL	B. Sc. (Hons.) Zoology V	MOLECULAR BIOLOGY	Odd Semester	None	August	Unit 8: Regulatory RNAs Ribo-switches	10
DR. TSEWANG NAMGIAL	B. Sc. (Hons.) Zoology V	MOLECULAR BIOLOGY	Odd Semester	None	September	Unit 8: Regulatory RNAs RNA interference: miRNA and siRNA.	20
DR. TSEWANG NAMGIAL	B. Sc. (Hons.) Zoology V	MOLECULAR BIOLOGY	Odd Semester	None	October	Unit 6: Gene Regulation Transcription regulation in prokaryotes: Principles of transcriptional regulation with examples from lac operon and trp operon; Unit 7: DNA Repair Mechanisms Pyrimidine dimerization and mismatch repair	40
DR. TSEWANG NAMGIAL	B. Sc. (Hons.) Zoology V	MOLECULAR BIOLOGY	Odd Semester	None	November	Unit 6: Gene Regulation Overview of transcription regulation in eukaryotes: Activators, repressors, enhancers, silencer elements; Gene silencing and Genetic imprinting. Gene silencing and Genetic imprinting	30
DR. TSEWANG NAMGIAL	B. Sc. (Hons.) Zoology V	PRINCIPLES OF GENETICS	Odd Semester	None	August	Unit 8: Transposable Genetic Elements /Transposons in bacteria,	10
DR. TSEWANG NAMGIAL	B. Sc. (Hons.) Zoology V	PRINCIPLES OF GENETICS	Odd Semester	None	September	Unit 8: Transposable Genetic Elements Transposons in humans, Transposons as mutagens Unit 6: Polygenic Inheritance	30
DR. TSEWANG NAMGIAL	B. Sc. (Hons.) Zoology V	PRINCIPLES OF GENETICS	Odd Semester	None	October	Unit 8: Transposable Genetic Elements Ty elements in yeast, Ac-Ds elements in maize and P elements in Drosophila, Polygenic inheritance with suitable examples and numericals	30
DR. TSEWANG NAMGIAL	B. Sc. (Hons.) Zoology V	PRINCIPLES OF GENETICS	Odd Semester	None	November	Unit 5: Extra-chromosomal Inheritance Mitochondrial mutations and human disorders, Infective heredity in Paramecium. Maternal effects:	30

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
						Shell coiling in Limnaea, pigmentations in Ephestia	
DR. TSEWANG NAMGIAL	B. Sc. Life Sciences III	BIOCHEMISTRY BASIC CONCEPTS OF METABOLISM	Odd Semester	Section A	August	UNIT- 2: Lipid Metabolism Introduction to lipid	10
DR. TSEWANG NAMGIAL	B. Sc. Life Sciences III	BIOCHEMISTRY BASIC CONCEPTS OF METABOLISM	Odd Semester	Section A	September	UNIT- 2: Lipid Metabolism Basic Structure and physiological significance of fatty acid, structure and significance of storage and structural lipid	20
DR. TSEWANG NAMGIAL	B. Sc. Life Sciences III	BIOCHEMISTRY BASIC CONCEPTS OF METABOLISM	Odd Semester	Section A	October	UNIT- 2: Lipid Metabolism Biosynthesis of fatty acid and synthesis reaction, β oxidation of palmitic acid: activation of fatty acids and oxidation with bioenergetics, regulation	30
DR. TSEWANG NAMGIAL	B. Sc. Life Sciences III	BIOCHEMISTRY BASIC CONCEPTS OF METABOLISM	Odd Semester	Section A	November	UNIT- 5: Oxidative Phosphorylation Review of Electron Transport Chain: Basics of electron transfer reactions, Universal Electron Acceptors without detailed structures, electron flow through complexes, Chemiosmotic theory, basics of ATP synthesis	40
DR. TSEWANG NAMGIAL	B. Sc. Life Sciences III	BIOCHEMISTRY BASIC CONCEPTS OF METABOLISM	Odd Semester	Section B	August	UNIT- 2: Lipid Metabolism Introduction to lipid.	10
DR. TSEWANG NAMGIAL	B. Sc. Life Sciences III	BIOCHEMISTRY BASIC CONCEPTS OF METABOLISM	Odd Semester	Section B	September	UNIT- 2: Lipid Metabolism Basic Structure and physiological significance of fatty acid, structure and significance of storage and structural lipid.	20
DR. TSEWANG NAMGIAL	B. Sc. Life Sciences III	BIOCHEMISTRY BASIC CONCEPTS OF METABOLISM	Odd Semester	Section B	October	UNIT- 2: Lipid Metabolism Biosynthesis of fatty acid and synthesis reaction, β oxidation of palmitic acid: activation of fatty acids and oxidation with bioenergetics, regulation	30
DR. TSEWANG NAMGIAL	B. Sc. Life Sciences III	BIOCHEMISTRY BASIC CONCEPTS OF METABOLISM	Odd Semester	Section B	November	UNIT- 5: Oxidative Phosphorylation Review of Electron Transport Chain: Basics of electron transfer reactions, Universal Electron Acceptors without detailed structures, electron flow through complexes, Chemiosmotic theory, basics of ATP synthesis.	40
DR. TSEWANG NAMGIAL	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section B	August	Unit 2: Molecular Techniques in Gene manipulation Polymerase Chain Reaction	10
DR.	B. Sc.	ANIMAL	Odd	Section	September	Unit 2: Molecular Techniques in	30

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
TSEWANG NAMGIAL	Life Sciences V	BIOTECHNOLOGY	Semester	B		Gene manipulation Reverse Transcript - Polymerase Chain Reaction (PCR) Real time - Polymerase Chain Reaction (PCR), and DNA microarray	
DR. TSEWANG NAMGIAL	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section B	October	Unit 2: Molecular Techniques in Gene manipulation DNA sequencing: Sanger and NGS (illumine) methods, Transformation techniques; Calcium chloride and electroporation method	30
DR. TSEWANG NAMGIAL	B. Sc. Life Sciences V	ANIMAL BIOTECHNOLOGY	Odd Semester	Section B	November	Construction of genomic and cDNA libraries and screening by colony and plaque hybridization, cDNA library screening by immunological methods	30
MEGHALI BHARTI	B. Sc. Life Sciences I	DIVERSITY OF ANIMALS	Odd Semester	Section B	August	Unit 1 : Introduction	100
Mr. MANISH KUMAR SACHDEVA	B. Sc. (Hons.) Zoology III	FUNDAMENTALS OF BIOCHEMISTRY	Odd Semester	None	August	Carbohydrate Metabolism	25
Mr. MANISH KUMAR SACHDEVA	B. Sc. (Hons.) Zoology III	FUNDAMENTALS OF BIOCHEMISTRY	Odd Semester	None	September	Carbohydrate Metabolism	75
Mr. MANISH KUMAR SACHDEVA	B. Sc. (Hons.) Zoology III	FUNDAMENTALS OF BIOCHEMISTRY	Odd Semester	None	October	Protein Metabolism	50
Mr. MANISH KUMAR SACHDEVA	B. Sc. (Hons.) Zoology III	FUNDAMENTALS OF BIOCHEMISTRY	Odd Semester	None	November	Protein Metabolism	50
Mr. MANISH KUMAR SACHDEVA	B. Sc. (Hons.) Zoology III	BIOCHEMISTRY METABOLIC PROCESSES	Odd Semester	None	August	Introduction: Metabolism	100
Mr. MANISH KUMAR SACHDEVA	B. Sc. (Hons.) Zoology III	BIOCHEMISTRY METABOLIC PROCESSES	Odd Semester	None	September	Carbohydrate metabolism	50
Mr. MANISH KUMAR SACHDEVA	B. Sc. (Hons.) Zoology III	BIOCHEMISTRY METABOLIC PROCESSES	Odd Semester	None	October	Carbohydrate metabolism	50
Mr. MANISH KUMAR SACHDEVA	B. Sc. (Hons.) Zoology III	BIOCHEMISTRY METABOLIC PROCESSES	Odd Semester	None	November	Protein metabolism	75
Mr. MANISH KUMAR SACHDEVA	B. Sc. (Hons.) Zoology	BIOCHEMISTRY METABOLIC PROCESSES	Odd Semester	None	December	Protein metabolism	25

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
	III						
Mr. MANISH KUMAR SACHDEVA	B. Sc. (Hons.) Zoology V	PRINCIPLES OF GENETICS	Odd Semester	None	August	Recombination in bacteria and viruses	25
Mr. MANISH KUMAR SACHDEVA	B. Sc. (Hons.) Zoology V	PRINCIPLES OF GENETICS	Odd Semester	None	September	Recombination in bacteria and viruses	75
Mr. MANISH KUMAR SACHDEVA	B. Sc. (Hons.) Zoology V	PRINCIPLES OF GENETICS	Odd Semester	None	October	Mutations	50
Mr. MANISH KUMAR SACHDEVA	B. Sc. (Hons.) Zoology V	PRINCIPLES OF GENETICS	Odd Semester	None	November	Mutations	50
Mr. MANISH KUMAR SACHDEVA	B. Sc. (Hons.) Zoology V	PRINCIPLES OF GENETICS	Odd Semester	None	August	Genetics of Bacteria and Viruses	50
Mr. MANISH KUMAR SACHDEVA	B. Sc. (Hons.) Zoology V	PRINCIPLES OF GENETICS	Odd Semester	None	September	Genetics of Bacteria and Viruses	50
Mr. MANISH KUMAR SACHDEVA	B. Sc. (Hons.) Zoology V	PRINCIPLES OF GENETICS	Odd Semester	None	October	Mutations	50
Mr. MANISH KUMAR SACHDEVA	B. Sc. (Hons.) Zoology V	PRINCIPLES OF GENETICS	Odd Semester	None	November	Mutations	25
Mr. MANISH KUMAR SACHDEVA	B. Sc. (Hons.) Zoology V	PRINCIPLES OF GENETICS	Odd Semester	None	December	Mutations	25
Ms. NIMITA KANT	B. Sc. (Hons.) Zoology I	BIOLOGY OF CELL: STRUCTURE AND FUNCTION - NEP	Odd Semester	None	August	1. Microscopy: Compound microscope: principle, components and handling; Phase contrast microscope; Electron microscope; Differential Interference Contrast (DIC) Microscope. 2. To study prokaryotic cells by Gram staining and eukaryotic cell (cheek cells) by hematoxylin/methylene blue	23
Ms. NIMITA KANT	B. Sc. (Hons.) Zoology I	BIOLOGY OF CELL: STRUCTURE AND FUNCTION - NEP	Odd Semester	None	September	3. Principle and types of cell fixation and staining; Cell fractionation. 4. Preparation of a temporary slide of squashed and stained onion root tip to study various stages of mitosis. 5. Preparation of stained mount to show the presence of Barr body in human female blood	31

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
						cells/cheek cells.	
Ms. NIMITA KANT	B. Sc. (Hons.) Zoology I	BIOLOGY OF CELL: STRUCTURE AND FUNCTION - NEP	Odd Semester	None	October	6. Study of various stages of meiosis through permanent slides. 7. Study the effect of colchicine on mitosis at 24 hrs and 48 hrs. 8. To study the effect of hypotonic, isotonic, and hypertonic solutions on cell permeability.	31
Ms. NIMITA KANT	B. Sc. (Hons.) Zoology I	BIOLOGY OF CELL: STRUCTURE AND FUNCTION - NEP	Odd Semester	None	November	9. Cytochemical demonstration of: a. DNA by Feulgen reaction b. Mucopolysaccharides by PAS reaction	8
Ms. NIMITA KANT	B. Sc. (Hons.) Zoology I	BIOLOGY OF CELL: STRUCTURE AND FUNCTION - NEP	Odd Semester	None	December	9. Cytochemical demonstration of: c. Proteins by Mercuric Bromophenol Blue/Acid Fast Green	7
Ms. NIMITA KANT	B. Sc. (Hons.) Zoology III	DIVERSITY OF CHORDATES	Odd Semester	None	August	Protochordates: Balanoglossus, Herdmania, Branchiostoma, Colonial Urochordata	14
Ms. NIMITA KANT	B. Sc. (Hons.) Zoology III	DIVERSITY OF CHORDATES	Odd Semester	None	September	Sections of Balanoglossus through proboscis and branchiogenital regions, Sections of Amphioxus through pharyngeal, intestinal and caudal regions. Permanent slide of Herdmania spicules. Reptilia: Chelone, Trionyx, Hemidactylus, Varanus, Uromastix, Chamaeleon, Ophiosaurus, Draco, Bungarus, Vipera, Naja, Hydrophis, Zamenis, Crocodylus Identification of poisonous and non-poisonous snakes Agnatha: Petromyzon, Myxine.	26
Ms. NIMITA KANT	B. Sc. (Hons.) Zoology III	DIVERSITY OF CHORDATES	Odd Semester	None	October	Fish: Scoliodon, Sphyrna, Pristis, Torpedo, Chimaera, Mystus, Heteropneustes, Labeo, Exocoetus, Echeneis, Anguilla, Hippocampus, Tetrodon/ Diodon, Anabas, Flat fish Aves: Study of six common birds from different orders. Types of beaks and claws	26
Ms. NIMITA KANT	B. Sc. (Hons.) Zoology III	DIVERSITY OF CHORDATES	Odd Semester	None	November	Amphibia: Ichthyophis/ Ureotyphlus, Necturus, Bufo, Hyla, Alytes, Salamandra	12
Ms. NIMITA KANT	B. Sc. (Hons.) Zoology III	DIVERSITY OF CHORDATES	Odd Semester	None	December	Mammalia: Sorex, Bat (Insectivorous and Frugivorous), Funambulus, Loris, Herpestes, Erinaceous. Study of Weberian ossicles of Mystus, pecten from fowl head and brain of fowl Power point presentation on study of any two animals from two different classes by	8

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Tota Cour (%)
						students	
Ms. NIMITA KANT	B. Sc. (Hons.) Zoology III	HUMAN PHYSIOLOGY LIFE SUSTAINING SYSTEMS	Odd Semester	None	August	• To understand the components of blood, their functions and Hematopoiesis. • Examination of histological sections of mammalian oesophagus, stomach, duodenum, ileum, rectum, liver, trachea, lung, kidney.	20
Ms. NIMITA KANT	B. Sc. (Hons.) Zoology III	HUMAN PHYSIOLOGY LIFE SUSTAINING SYSTEMS	Odd Semester	None	September	• Preparation of haemin and haemochromogen crystals. •To study whole blood hemolysis with ammonium chloride solution.	26
Ms. NIMITA KANT	B. Sc. (Hons.) Zoology III	HUMAN PHYSIOLOGY LIFE SUSTAINING SYSTEMS	Odd Semester	None	October	• Measurement and statistical analysis of variations observed in the student population in the class for the following parameters: a) White blood cells using haemocytometer b) Red blood cells using haemocytometer c) Hemoglobin estimation	26
Ms. NIMITA KANT	B. Sc. (Hons.) Zoology III	HUMAN PHYSIOLOGY LIFE SUSTAINING SYSTEMS	Odd Semester	None	November	• Estimation of Blood pressure • Study of Electrocardiogram; Analysis of ECG records and calculation of heart rate.	20
Ms. NIMITA KANT	B. Sc. (Hons.) Zoology III	HUMAN PHYSIOLOGY LIFE SUSTAINING SYSTEMS	Odd Semester	None	December	• Detection of abnormal constituents in urine and their physiological significance. • Revision, Evaluation of records and project report	8