

D.B.G.GOV.T.COLLEGE, PANIPAT

Session2026-2027(ODD SEMESTER)

NAMEOFPROFESSOR: Dr. Seema

DESIGNATION: Assistant Professor in Zoology

SUBJECT/PAPER: Ecology and Environment (B23-ZOO-501)

CLASS-B.Sc.III 5TH Sem (Life Science)

SR. NO.	MONTH	TOPICS TO BE COVERED
1.	AUGUST	Basic concepts of ecology: Definition, significance. Concepts of habitat and ecological Niche. Ecosystem: Concept, components, properties and functions; Ecological energetics and energy flow models, food chain, food web, trophic structure; ecological pyramids, concept of productivity.
2.	SEPTEMBER	Factors affecting environment: Abiotic factors (light-intensity, quality and duration), temperature, humidity, wind, Rainfall, topography; edaphic factors; Biotic factors. Introduction to major ecosystems of the world. Biogeochemical cycles: Concept, reservoir pool, gaseous cycles and sedimentary cycles. Community Ecology: Characteristics, Composition,structure, origin and development of a community Ecological Succession.
3.	OCTOBER	Population: Growth and regulation. Population interactions: Competition, predation, parasitism, commensalisms and mutualism. Concept of biodiversity and conservation of natural resources.
4.	NOVEMBER	Climate change: Global warming, Greenhouse Effect, Ozone Depletion, Sustainable Development Revision

ONE ASSIGNMENTS AND ONE UNIT TEST WILL BE TAKEN AS PER SCHEDULE.

Signature of Assistant Professor

D.B.G.GOV.T.COLLEGE, PANIPAT

Session 2026-2027 (ODD SEMESTER)

NAME OF PROFESSOR: Dr. Renu

DESIGNATION: Assistant Professor in Zoology

SUBJECT/PAPER: B23-ZOO-301 (Cell Biology and Animal Genetics)

CLASS- B.Sc. II 3RD SEM (Medical)

SR. NO.	MONTH	TOPICS TO BE COVERED	REMARKS IF ANY
1.	August	General structure of animal cell. Plasma Membrane: Fluid mosaic model, various modes of transport across the membrane, mechanism of active and passive transport, endocytosis and exocytosis. Endoplasmic reticulum (ER): types and functions. Golgi complex: Structure, associated enzymes and role of golgi-complex in animal cell.	
2.	September	Ribosomes: Types, biogenesis and role in protein synthesis. Lysosomes: Structure, enzymes and their role; polymorphism Mitochondria: Structure, Mitochondria as semiautonomous body, biogenesis, functions of mitochondria. Cilia and Flagella: Structure and Functions Ultrastructure and functions of Nucleus: Nuclear membrane, nuclear lamina, nucleolus, fine structure of chromosomes, nucleosome concept and role of histones, euchromatin and heterochromatin.	
3.	October	Introduction and Mendel's Laws of Inheritance, Linkage and recombination: Cell Cycle, crossing-over and chiasma formation; gene mapping. 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. 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 Extra chromosomal and cytoplasmic inheritance: Kappa particles in Paramecium, Shell coiling in snails, Milk factor in mice	Assignment1+ Test

4.	November	Multiple allelism: Eye colour in Drosophila; A, B, O blood group in man. 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). Applied genetics: Genetic counseling, pre-natal diagnosis, DNA-finger printing, transgenic animals.	
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Signature of Assistant Professor

D.B.G.GOV.T.COLLEGE, PANIPAT

Session 2026-2027 (ODD SEMESTER)

NAME OF PROFESSOR: Dr. Seema/Dr. Renu/Dr. Kavita Taneja

DESIGNATION: Assistant Professor in Zoology

SUBJECT/PAPER : Environmental Studies

CLASS- B.B.A./B.C.A./B.COM./ B.Sc I Year

SR. NO.	MONTH	TOPICS TO BE COVERED	REMARKS IF ANY
1.	AUGUST	Introduction to environmental studies: Multidisciplinary nature of environmental studies; Scope and importance; Concept of sustainability and sustainable development. Ecosystems: Definition, structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs, Major ecosystems types: Forest ecosystem, Grassland ecosystem, Desert ecosystem and Aquatic ecosystem (lakes, rivers, oceans).	
2.	SEPTEMBER	Natural resources: Renewable and Non- renewable Resources Land resources: Land degradation and soil erosion. Forest resources: Importance of forests, deforestation: causes and impacts on environment. Water resources: Use and over- exploitation of surface and ground water. Energy resources: Renewable and non-renewable energy sources. Biodiversity and Conservation: Definition and its types, Endangered and endemic species of India. Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation o biodiversity: In-situ and Ex-situ conservation of biodiversity. Ecosystem and biodiversity services: Ecological, economic ,social, ethical , aesthetic and informational values.	Assignment 1+Test

3.	OCTOBER	Environmental pollution Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution. Solid waste management: Sources, methods of disposal: Landfill, incineration and composting. Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture. Environmental Policies& Practices Environmental laws: Environment	
4.	NOVEMBER	Human Communities and the Environment: Human population growth: Impacts on environment, human health and welfare. Resettlement and rehabilitation of project affected person. Disaster management: floods, earthquake, cyclones, landslides and drought. Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.	
5	DECEMBER	Revision	

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Session2026-2027(ODD SEMESTER)

NAME OF PROFESSOR: Dr. Seema/Dr. Renu

DESIGNATION: Assistant Professor in Zoology

SUBJECT/PAPER: Microtomy (B23-SEC-321)

CLASS-B.Sc.II/B.Com 3TH SEM (Life Science)

SR. NO.	MONTH	TOPICS TO BE COVERED
1.	AUGUST	Microtomy:- Introduction, definition, History and Applications in Biological sciences; Types of microtomes- Rotary microtome, Sledge Microtome and Cryomicrotome.
2.	SEPTEMBER	Collection and transportation of sample/specimens for histological examination; Basic concepts of fixation- Various types of fixatives used in microtomy; Process of fixation; Embedding-Block formation
3.	OCTOBER	Section Cutting: Paraffin section cutting ; Stretching- Spreading the sections and attachment to the glass slides; Staining – Principle and procedure; Preparation of Stains and solvents
4.	NOVEMBER	General Staining Procedures for Paraffin Embedded tissue; Nuclear Stains and Cytoplasmic stains- Haematoxylin and Eosin staining, Mercury Bromophenol Blue staining; Toulidine Blue; Commonly used mountants in microtomy.

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Session2026-2027(ODD SEMESTER)

NAME OF PROFESSOR: Dr. Seema/Dr. Renu

DESIGNATION: Assistant Professor in Zoology

SUBJECT/PAPER: Introduction to Biodiversity (B23-EVS-301)

CLASS-B.Sc.II 3TH SEM (Life Science)

SR. NO.	MONTH	TOPICS TO BE COVERED
1.	AUGUST	Definition, History and importance of Biodiversity; Concept of species and speciation ; Genetic variations, natural selection, genetic drift and gene flow; Biodiversity, magnitude, global accumulation; levels of biodiversity - species, genetic and ecosystem diversity; species diversity indices.
2.	SEPTEMBER	Biodiversity gradient – latitudinal and altitudinal; Biodiversity at global, national and local levels; Concept of hotspot of biodiversity; Criteria for determining hot spots; India as a Mega Diversity Nation. Indian hotspots diversity: Indo-Burma (Eastern Himalaya), Western Ghats, Sri Lanka and Sundaland; Biodiversity of mangroves, wetlands and coral reefs – A general account
3.	OCTOBER	Value of Biodiversity- Intrinsic, consumptive, productive use, social, ethical, aesthetic and option values. Biodiversity uses and ecosystem services. Threats to biodiversity- habitat loss, habitat fragmentation, exotic species and environmental pollution; species extinction. Concept of IUCN threat categories; Concept of Red data book; Endangered and threatened species of India.
4.	NOVEMBER	Approaches for Conservation of Biological diversity. In- situ and exsitu conservation. In situ conservation.- Protected areas, Wildlife sanctuaries, National parks, Biosphere reserves. Strategies for ex situ conservation – Botanical Gardens, Seed banks, Field gene banks, Test tube gene banks, pollen banks, DNA bank, in vitro conservation.

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Signature of Assistant Professor