

Class - B sc. 2nd year (3rd semester)
Lesson plan (Session 2026-27)

Subject- Cell biology and Animal Genetics (B23-ZOO-301)

Class Teacher- Dr. Amit Kumar

UNIT	TOPICS	DATE	CONTACT HOURS
I	General structure of animal cell. Plasma membrane: various modes of transport across the membrane.	03/08/26-05/08/26 (3hrs)	12
	Mechanism of active and passive transport, endocytosis and exocytosis.	10/08/26-12/08/26 (3hrs)	
	Endoplasmic reticulum (ER): Types and functions	17/08/26-19/08/26 (3hrs)	
	Golgi complex : structure, associated enzymes and role of Golgi-complex in animal cell.	24/08/26-26/08/26 (3hrs)	
	Unit test	31/08/26-02/09/26 (3hrs)	
II	Ribosomes: Types, biogenesis and role in protein synthesis.	07/09/26-09/09/26 (3hrs)	11
	Lysosomes: Structure, enzymes and their role; polymorphism.	14/09/26-16/09/26 (3hrs)	
	Mitochondria: Structure, mitochondria as semiautonomous-body, biogenesis and function of mitochondria .	21/09/26-22/09/26 (2hrs)	
	Cilia and flagella: Structure and functions.	28/09/26-30/09/26 (3hrs)	
	Ultrastructure and functions of nucleus: nuclear membrane, nuclear lamina, nucleolus.		
III	Fine structure of chromosomes, nucleosome concept and role of histones, euchromatin and heterochromatin.		11
	Unit test		
	Introduction and Mendel's Laws of Inheritance. Linkage and recombination. Cell cycle, crossing over and chiasma formation; gene mapping		
	Sex determination and its mechanisms : male and female heterozygous systems, genetic balance systems; role of Y-chromosome, male haploidy, cytoplasmic and environmental factors, role of hormones in sex determination.	05/10/26-07/10/26 (3hrs)	
	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.	12/10/26-14/10/26 (3hrs)	
IV	Extra chromosomal and cytoplasmic inheritance: kappa particles in paramecium, Shell coiling in snails, Milk factor in mice.	19/10/26 & 21/10/26 (2 hrs)	11
	Unit test		
	Multiple allelism: Eye colour in Drosophila; A,B,O blood group in man.	27/10/26 & 28/10/26 (2 hrs)	
	Human genetics: Human karyotype, chromosomal abnormalities involving autosomes and sex chromosomes, monozygotic and dizygotic twins	10/11/26 & 11/11/26 (2 hrs)	
	Inborn error of metabolism (Alcaptonuria, Phenylketonuria, Albinism, sickle-cell anaemia)	16/11/26 -18/11/26 (3 hrs)	
	Applied genetics: Genetic counseling, pre natal diagnosis	23/11/26 & 25/11/26 (2 hrs)	
	DNA fingerprinting, transgenic animals.	30/11/26 & 01/12/26 (2 hrs)	
	Unit test		
	Revision, Test and assessment	02/12/26 – Till practical and exam	

Amit
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Class - B sc, 3rd year (5th semester)

Session 2026-27

Lesson plan

Subject- Ecology and Environment (B23-ZOO-501)

Class Teacher- Dr. Amit Kumar

UNIT	TOPICS	DATE	CONTACT HOURS
I	Basic concepts of ecology: Definition significance.	01/08/26 (1hr)	12
		06/08/26 - 08/08/26 (3hrs)	
	Concepts of habitat and ecological niche.	13/08/26 & 14/08/26 (2hrs)	
	Ecosystem: concept, Components, properties and functions.	20/08/26 - 22/08/26 (3hrs)	
	Ecological energetics and energy flow models, Food chain, food web; trophic structure; ecological pyramids, concept of productivity. Unit test	27/08/26, 29/08/26 & 03/09/26 (3hrs)	
II	Factors affecting environment: Abiotic factors (light intensity, quality and duration) temperature, humidity, wind, rainfall, topography, edaphic factors, Biotic factors.	05/09/26 (1 hr)	11
		10/09/26-12/09/26 (3hrs)	
	Introduction to major ecosystem of the world. Biogeochemical cycles: concept, reservoir pool, gaseous cycles and sedimentary cycles	17/09/26-19/09/26 (3hrs)	
	Community ecology: Characteristics, composition, structure.	24/09/26-26/09/26 (3hrs)	
	Origin and development of a community ecological succession. Unit test	01/10/26 (1hr)	
III	Population: Growth and regulation.	03/10/26 (1 hr)	11
		08/10/26-10/10/26 (3 hrs)	
	Population interactions: Competition, predation, parasitism	15/10/26-17/10/26 (3hrs)	
	Commensalisms and mutualism. Concept of biodiversity	22/10/26-24/10/26 (3hrs)	
	Conservation of natural resources Unit test	29/10/26 (1hr)	
IV	Climate change: Global warming, greenhouse effect, ozone depletion and sustainable development.	30/10/26 & 31/10/26 (2 hrs)	11
	Natural resources: Types, uses and conservation.	12/11/26 -14/11/26 (3 hrs)	
	Environmental pollution: Air, water, soil and management strategies.	19/11/26 -21/11/26 (3 hrs)	
	Environmental impact assessment. Unit test	26/11/26 -28/11/26 (3 hrs)	
	Revision, Test and assessment	01/12/26 - Till practical and exam	

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LESSON-PLAN (Session 2026-2027) ODD SEMESTER

Name of Teacher: Sahil Dhiman

Designation: Assistant Professor

Subject: Zoology

Class: B.Sc. 1st Semester

Paper: Animal Diversity of Non-Chordates (B23-ZOO-101)

Sr. No.	Subject/ Paper	Months	Topics to be covered	Remarks if any,
1		August (01-08-2026 To 31-08-2026)	Phylum Protozoa: General characters and classification upto class level Type study of Plasmodium Phylum Porifera: General characters and classification upto class level Type study of Sycon	Class test will be taken
2		September (01-09-2026 To 30-09-2026)	Phylum Coelentrata General characters and classification upto class level Type study of Obelia Phylum Platyhelminthes and Aschelminthes General characters and classification upto class level Type study of Liver Fluke, <i>Fasciola hepatica</i>	Unit test will be taken
3		October (01-10-2026 To 31-10-2026)	Phylum Annelida General characters and classification upto class level Type study of Earthworm (Habitat, habits, metamerism, digestive system, circulatory system, nervous system, reproductive system) Phylum Arthropoda General characters and classification upto class level Type study of Cockroach (Habitat, habits, external morphology, digestive system, respiratory system, excretory system, reproductive system)	Assignment will be taken
4		November December (01-11-2026 To 05-12-2026)	Phylum Mollusca General characters and classification upto class level Type study of Pila Phylum Echinodermata General characters and classification upto class level Type study of <i>Asterias</i> (Sea Star) (Habitat, habits, external morphology, water vascular system, circulatory system) Phylum Hemichordata: General characters of Hemichordates with examples	Group discussion and Revision will be done

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Sahil

LESSON-PLAN (Session 2026-2027) ODD SEMESTER

Name of Teacher:

Sahil Dhiman

Designation:

Assistant Professor

Subject:

Zoology SEC

Class:

B.Sc. 1st Semester

Paper:

Techniques in Bird watching (B23-SEC-220)

Subject/ Paper Sr. No.	Months	Topics to be covered	Remarks if any,
1	August (01-08-2026 To 31-08-2026)	Introduction to Bird watching Characteristics of Birds with flight adaptations Important field signs of bird watching	
2	September (01-09-2026 To 30-09-2026)	Zoological names of important birds Field characters of important birds Sexual dimorphism in birds	
3	October (01-10-2026 To 31-10-2026)	Important Indian Bird areas Important Bird areas of Haryana Resident & Migratory Birds	
4	November December (01-11-2026 To 05-12-2026)	Introduction to Bird watching Birds as bio-indicators with Bird education Birds in food chain and Agriculture Bird Migration	

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Sahil

LESSON-PLAN (Session 2026-2027) ODD SEMESTER

Name of Teacher:

Sahil Dhiman

Designation:

Assistant Professor

Subject:

Zoology SEC

Class:

3rd Semester

Paper:

Microtomy (B23-SEC-321)

Sr. No.	Subject/ Paper	Months	Topics to be covered	Remarks if any,
1		August (01-08-2026 To 31-08-2026)	Microtomy: Introduction, definition, History and Application in Biological sciences; Types of microtomes- Rotary microtome, Sledge microtome and Cryomicrotome	
2		September (01-09-2026 To 30-09-2026)	Collection and transportation of samples/specimens for histological examination; Basic concepts of fixation- Various types of fixatives used in microtomy; Process of fixation; Embedding- Block formation	
3		October (01-10-2026 To 31-10-2026)	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 December (01-11-2026 To 05-12-2026)	General Staining Procedures for Paraffin Embedded tissues: Nuclear Stains and Cytoplasmic stains- Haematoxylin and Eosin staining, Mercury Bromophenol Blue staining; Toulidine Blue; Commonly used mountants in microtomy.	

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LESSON-PLAN (Session 2026-2027) ODD SEMESTER

Name of Teacher:

Sahil Dhiman

Designation:

Assistant Professor

Subject:

Zoology MDC

Class:

1st Semester

Paper:

Basics of Zoology-I (B23-ZOO-104)

Subject/ Paper Sr. No.	Months	Topics to be covered	Remarks if any,
1	August (01-08-2026 To 31-08-2026)	Zoology: Definition and scope, introduction to Animal Kingdom, animal characters Non-Chordates and Invertebrates with examples, invertebrate Phyla, Introduction to basic characters of animal with special reference to the non chordates; Biodiversity: Introduction and scope; General characters of Protozoa and Porifera; Study of Amoeba and sponges with special reference to its structure and economic importance	
2	September (01-09-2026 To 30-09-2026)	General characters of Coelentrata and Annelida; Ecological importance of corals; Morphology of earthworm and its ecological role; Economic importance of Leech	
3	October (01-10-2026 To 31-10-2026)	General characters of Arthropoda and Mollusca; Study of basic characters of insects and snails; Insects as pest: Grasshopper, Economic importance of Honey Bee; Snails as pest in Paddy fields	
4	November December (01-11-2026 To 05-12-2026)	General characters of Echinodermata; Study of basic characters of Star fish with reference to its role in ecosystem; Economic importance of Star Fish	

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LESSON-PLAN (Session 2026-2027) ODD SEMESTER

Name of Teacher:

Sahil Dhiman

Designation:

Assistant Professor

Subject:

Zoology MDC

Class:

3rd Semester

Paper:

Basics of Zoology-III (B23-ZOO-303)

Subject/ Paper Sr. No.	Months	Topics to be covered	Remarks if any,
1	August (01-08-2026 To 31-08-2026)	Human skeleton and bones: Characteristics (axial and appendicular skeleton), joints, cartilage and ligaments, interaction between skeletal muscles and nerves. ABO and RH system in humans, methods of determination, importance and danger of blood transfusion.	
2	September (01-09-2026 To 30-09-2026)	Human cell and chromosomes: Cell as unit of life, morphology and functional elements of human chromosome. Sex determination: Definition, different types and scope.	
3	October (01-10-2026 To 31-10-2026)	Respiration in humans: Anatomy and physiology of respiration, factor affecting change of gases and diffusing capacity. Introduction to dental formula, types and development of tooth	
4	November December (01-11-2026 To 05-12-2026)	Darwinism, species and population: concept of evolution, theory of Darwinism, Neo-Darwinism, genetic drift, Hardy Weinberg Law Human Evolution: Origin and evolution, adaptive evolution.	

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Sahil

Subject. Zoology lessonplan.

Course name. Basics of zoology-1

B.A., B.A.Hon's. B.com.

MDC practical B23-ZOO-104.

Virender kumar.

Extension lecturer, Zoology.

Date 03.09.2026-05.09.2026.

Topic. To study the non-chordates from pond water.

Date. 10-09-2026-19-09-2026. To study the different parts of insects by examining housefly, butterfly, beetles.

Date. 24.09.2026-05.10.2026.

To study the characters of burrowing nonchordates e.g. Earthworm.

Date. 10.10.2026-19.10.2026.

Topic To study the various minor phyla as connecting link.

Date. 26.10.2026-02.11.2026.

Identification of Non chordates specimens of various phyla.

The End.

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Practical MDC Semester -3

Course name. Basic of Zoology.

Course code. B23-ZOO-303.

Time. 4hrs. Virender kumar.

Extension lecturer.

Date . 03-09-2026-12-09-2026.

Time. To study different Human bones. Skull, Vertebrae, Girdles, limb bones.

Date. 17-09-2026-26-09-2026.

Topic . Preparation of mitotic chromosomes from onion root tips.

Date. 31-09-2026- 09-10-2026.

Topic. A. Prepared slides of stages of mitosis.

Date. 14-10-2026-23-10-2026.

3. B. Prepared slides of stages of meiosis.

Date. 28-10-2026-12-11-2026.

Topic . Blood grouping in Human.

The End.

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Practical.Course code -B23-SEC-321.

Course name. MDC.Microtomy.

Date. 06-09-2026-14-09-2026.

Topic name. Collection and labelling of specimen.

Virender kumar. Extension lecturer. Zoology.

Date 17-09-2026-26-09-2026.

Topic . To demonstrate various part and type of chromósome.

Date. 31-09-2026-09-10-2026.

Topic name. Preparation of various fixatives -Bouins fluid.,Corney fluid, 10%Neutral formalin Normal Saline.

Date. 14-10-2026-23-10-2026.

Time. Processing of tissue by manual method.

Date. 28-10-2026-14-11-2026.

Topic. To perform embedding and casting of block, sectioncutting,stretching.

Date. 19-11-2026-28-11-2028.

Topic . To perform&practice the Haemayoxilin and Eosin staining,MercuryBromophenol Blue staining;Toluidine Blue Staining.

Date. 3-12-2026-12-12-2026.

Topic. Study thepermanent slides of different tissues.

The End.

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LESSON PLAN (August 2026 – December 2026)

Name of Assistant Professor: Naveen Kumar Saxena

Class: BA & B.Sc. 3rd Year Semester I-5th

Subject: Zoology

Lesson Plan: From August 2026 To December 2026

Unit I

Week 1. Apiculture meaning, definition scope and history Status of Apiculture Industry in India

Week 2 Classification and Life Cycle of Honey Bee.

Week 3 Identification of Indigenous and exotic Honey bee species

Unit Test

Unit II

Week 4. Cultivable species of Honey Bee with reference to India Social organization of honey bees: the castes- queen, drone and workers,

Week 5. Nesting behavior of Honey bees, Bee foraging, Seasonal management,

Week 6. Swarming in Honey bees, waggle dance, defense in honey bees Diseases and Enemies.

Week 7. Defense in honey bees Diseases and Enemies. Of Bees, Control and Preventive measures.

Unit Test	
Unit III	
Week 8. Role of Bees in cross pollination in horticulture and agriculture,	
Week 9. Methods of Artificial Bee keeping	
Week 10. Equipment's used in Bee keeping Industry	
Week 11. Methods of extraction of Honey and other products.	
Unit Test	
Unit IV	
Week 12. Products of Apiculture Industry and their Uses (Honey, Bee Wax, Royal Jelly, Bee Venom, Propolis and Pollen)	
Week 13. Products of Apiculture Industry and their Uses (Bee Venom, Propolis and Pollen)	
Vacation Diwali From 01/11/2026 To 09/11/2026	
Week 14. Bee Keeping Industry: Present and future Prospects of apiculture as self employment venture.	
Week 15. Economics of Apiculture: Expenditure, Net Income, and Additional benefits	
Week 16. Economics of Apiculture: Expenditure, Net Income, and Additional benefits	
Week 17. Assessment Test	

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03/06/2026