

Satyaniketan's

Adv. M. N. Deshmukh Arts, Science and Commerce College, Rajur

Annual Teaching Planning 2025-2026

F.Y. B.Sc. Zoology (NEP 2020) Semester I

Subject Name -: ZOO - 101 - T: Genetics and Medical Zoology (T)

Teacher's Name- Prof. Kasar R. N.

Sr. No.	Month	Topic	No. of Periods
1.	July 2025	Recapitulation of Mendelian Genetics Non-Mendelian Genetics Multiple alleles	07
2.	August 2025	Chromosomes Sex Determination	08
3.	September 2025	Sex-linked Inheritance Introduction to Medical Zoology Epidemic Diseases in Human Vector Borne Diseases in Human Microbial Diseases in Human	07
4.	October 2025	Microbial Diseases in Human Investigations and treatments of human physiological disorders	08
Total			30

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F.Y. B.A. OE-Zoology Semester I

Subject Name -: OE - 101 - ZOO: Apiculture (T)

Teacher's Name- Prof. Kasar R. N.

Sr. No.	Month	Topic	No. of Periods
1.	August 2025	Study of honey bees: 1.1 Introduction. 1.2 Systematic Position, habit, habitat, distribution, marks of identification and nesting behavior of <i>Apis dorsata</i> , <i>Apis indica</i> , <i>Apis florae</i> and <i>Apis mellifera</i> . 1.3 Life cycle of honey bee, colony organization and division of labour. Study of Behavior and Equipments: 2.1 Bee behavior and communication - Round dance and Wag-tail dance. 2.2 Artificial bee rearing (apiary) : Beehives (Langstroth), Beekeeping and seasonal management.	10
2.	September 2025	2.3 Bee keeping equipments – Comb foundation sheet, Honey extractor, Uncapping knife, Smoker, Hive tool, Overall, Bee veil, Bee gloves, High boots, Bee brush, D. B. feeder. 2.4 Methods of extraction of honey. (Indigenous and Modern) Study of Enemies and Diseases: 3.1 Enemies of honey bee : Wax moth, Wax beetle, Wasps, Ants, Birds (Green bee eater, King crow), Amphibians and Mammals.	10
3.	October 2025	3.2 Bee diseases : Protozoan (Nosema), Bacterial (American foul brood), Viral (Sac brood), Fungal (Chalk brood). 3.3 Control and preventive measures of Bee diseases. Bee economics and Marketing: 4.1 Bee Economy : Products of apiculture industry and its uses - honey, bees wax, propolis, pollen, bee venom, royal jelly. 4.2 Bee pollination and management. 4.3 Entrepreneurship in Apiculture.	10
Total			30

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S.Y. B.Sc. Zoology Semester III

Subject Name -: ZOO - 201 - MJ : Public Health and Hygiene (T)

Teacher's Name- **Prof. Kasar R. N**

Sr. No.	Month	Topic	No. of Periods
1.	July 2025	Introduction to public health : 1.1 Definition and scope. 1.2 Principles and key concepts of public health. 1.3 Determinants of health (biological, environmental, socio-economic). 1.4 Right to be healthy. Communicable and non-communicable diseases : 2.1 Communicable diseases: Causes, symptoms and preventive measures of Malaria, sexually transmitted diseases, Rabies.	06
2.	August 2025	2.2 Non-communicable diseases: Heart Attack and Strokes, Asthma, Diabetes, Hypotension, Hypertension. 2.3 Introduction to Cancer, Depression, Anxiety, Arthritis. Health Education : 3.1 Definition, principle and methods of health education. 3.2 Managing population growth and promoting family health, mental health challenges in children. 3.3 Harmful effects of junk food and street food, tobacco, alcohol and drugs on health. 3.4 Unhealthy lifestyle habits: Overusing digital devices (computer & mobile phones) and their impacts on health. 3.5 Role of health education in environment improvement and prevention of diseases, national health programs and policies.	10
3.	September 2025	Hygiene : 4.1 Definition, principle and importance of hygiene. 4.2 Kinds of hygiene: Personal hygiene - regular hand washing, dental care, body odour, proper grooming, good sleep habits, menstrual health. 4.3 Community hygiene: Keeping surroundings, public spaces and shared facilities clean to stop the spread of diseases and standard hygiene practices. 4.4 Food hygiene: Safe handling, preparation, and storage of food to prevent food borne illness. Public health & hygiene : 5.1 Common hygiene-related diseases: Food poisoning, giardiasis, diarrhea. 5.2 Importance of community hygiene and public sanitation.	10

		5.3 Hygiene practices in schools and hostels. 5.4 Role of government and NGOs in promoting hygiene (Clean India Campaign, swachh bharat abhiyan, clean village campaigns).	
4.	October 2025	Health administration : 6.1 Structure and management of health services from national to local levels. 6.2 National health policies and government health initiatives in India, health communication methods for spreading awareness. 6.3 WHO Programme - Government and voluntary organizations and their health services. 6.4 Case study: Covid -19 pandemic, significant changes and adaptation: testing and diagnosis (swab and RT - PCR), vaccine development and preventive measures.	04
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T.Y. B.Sc. Zoology Semester V
Subject Name :- ZO 353 – Biological Chemistry
Teacher's Name- Prof. Kasar R. N.

Sr. No.	Month	Topic	No. of Periods
1	August 2025	1. Introduction of Biochemistry: Importance of Biochemistry in Life Sciences. 2. p H and Buffers: 2.1 Concept of pH. 2.2 Concept of pH scale, biological significance of p H 2.3 Concept of acid and base, Ionization of acids and bases. 2.4 Derivation of Henderson-Hassel Balch equation & its applications. 2.5 Buffer - Definition, Concept, Functions, Types of buffer and Buffering Capacity. 3. Carbohydrates: 3.1 Definition, Classification & Biological importance of Carbohydrates. 3.2 Isomerism in carbohydrates - Structural and Stereoisomerism. 3.4 Significance of Gluconeogenesis, Glycogenolysis and Glycogenesis. 3.3 Clinical Significance - Hypoglycemia and Hyperglycemia.	10
2	September 2025	4. Amino acids and Proteins: 4.1 General Structure of amino acids and Peptide bond. 4.2 Essential and non-essential amino acids. 4.3 Types of proteins, protein structures Forces responsible for their stability. 4.5 Biological importance of proteins 5. Enzymes: 5.1Nomenclature, Types and properties of enzymes. 5.2 Regulatory and non-regulatory enzymes.	10
3	October 2025	5.3 Enzyme inhibition. 5.4 Factors influencing enzyme activity 5.5 Introduction of isoenzymes and cofactor. 5.6 Clinical significance of enzymes - PKU and AKU. 6. Lipids 6.1 Introduction. 6.2. Fatty acids - Types and nomenclature (saturated and unsaturated). 6.3 Clinical significance (obesity, atherosclerosis, myocardial infarction). 6.4 Biological importance of lipids.	10
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F.Y. B.Sc. Zoology (NEP 2020) Semester II

Subject Name -: ZOO - 151 - T: Cell Biology & Biomedical Techniques (T)

Teacher's Name- Prof. Kasar R. N.

Sr. No.	Month	Topic	No. of Periods
1.	January 2026	Overview of cells Plasma membrane Cell organelles: Structure and functions	02 03 06
2.	February 2026	Cell Division Introduction and scope of biomedical techniques Laboratory instruments: Introduction, principle and working	04 01 04
3.	March 2026	Biomedical Instruments: Introduction, principle & brief working Clinical Techniques: Introduction and working principle	03 04
4.	April 2026	Urine analysis	03
Total			30

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S.Y. B.Sc. Zoology Semester IV
Subject Name :- ZOO - 251 – MJ : Ecology (T)
Teacher's Name- Prof. Kasar R. N.

Sr. No.	Month	Topic	No. of Periods
1.	January 2026	Introduction to Ecology : 1.1 Definition of Ecology, types of ecology, autecology and synecology. 1.2 Levels of ecological organisation from individual organism to the biosphere. 1.3 Importance of Ecology. Ecosystem : 2.1 Ecosystem - Definition and components - biotic and abiotic. 2.2 Functions of ecosystem. 2.3 Types of ecosystems: Aquatic - Freshwater ecosystem – Lentic and Lotic	08
2.	February 2026	and Marine ecosystem, Terrestrial - Forest, Grassland and Desert ecosystem. 2.4 Food chain and food web in ecosystem. 2.5 Energy flow through the ecosystem. 2.6 Ecological pyramids - energy, biomass and number. Population Ecology : 3.1 Introduction and concepts of population ecology. 3.2 Population characteristics, population density, population size. 3.4 Population growth, factors affecting population growth, natality, mortality, immigration, emigration. 3.5 Population growth curves, types of growth curves - exponential and logistic. 3.6 Sampling techniques for determining population size and density - quadrat, mark and recapture, camera traps. 3.7 Ecological sampling techniques used to study the distribution and abundance of organisms - Line transect and Belt transect method.	08
3.	March 2026	Community Ecology : 4.1 Introduction and concepts of community ecology. 4.2 Community characteristics - species richness, dominance, diversity, abundance. 4.3 Ecotone and edge effect. 4.4 Ecological succession, types of succession with example.	08

4.	April 2026	Population Interactions : 5.1 Concept of interspecific and intraspecific population interactions. 5.2. Protocooperation - Ants and Aphids, Amazonian bees and Scale ants. 5.3 Mutualism – Honey bee and Flowering plants, <i>Acacia</i> and <i>Pseudomyrmex</i> ants. 5.4 Commensalisms - Hermit crabs and gastropod shell, Remora fish on shark. 5.5 Parasitism - Tapeworms and humans, copepods and fish. 5.6 Brood parasitism - Common cuckoo, Honey guide bird. 5.7 Predation - Tiger and deer, eagle and snake. 5.8 Competition - Interspecific and intraspecific with any two examples of each.	08
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T.Y. B.Sc. Zoology Semester VI
Subject Name :- ZO 363 - Molecular Biology
Teacher's Name- Prof. Kasar R. N.

Sr. No.	Month	Topic	No. of Periods
1	December 2025	1. Nucleic Acids and Chromatin: 1.1 Structure of RNA & DNA. 1.2 Types of RNA. 1.3 DNA as genetic material - evidences (Griffith's, Avery et al., Hershey and Chase experiment), RNA as genetic material - TMV 4. 1.4 Structure of Chromatin, packaging of DNA, Heterochromatin, Euchromatin.	7
2	January 2026	2. Central Dogma of Molecular Biology: 2.1 DNA Replication - Semiconservative (Messelson and Stahl experiment), Basic mechanism of replication in prokaryotes and eukaryotes.	7
3	February 2026	2.2 Transcription – 2.2.1 Basic mechanism of transcription in prokaryotes and eukaryotes, RNA polymerase enzyme in prokaryotes. 2.2.2 RNA modifications and processing (splicing - mRNA, modifications at 3' and 5' end). 2.3 Translation - Genetic code, properties of genetic code, Basic mechanism of Translation in E. coli and eukaryotic cells	8
4	March 2026	. 3. Lac operon: 4. DNA repair mechanism: Photo repair, dark repair, base excision repair. 5. Recombinant DNA Technology: Introduction, restriction enzymes, cloning vector, PCR (polymerase chain reaction), DNA finger printing	8
Total			30