

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

Annual Teaching Planning 2023-2024

F.Y. B.Sc. Zoology Semester I

Subject Name :- ZO 112 – Animal Ecology

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

Sr. No.	Month	Topic	No. of Periods
1.	Jully 2023	1. Introduction to Ecology 1.1 Concepts of Ecology, Environment, Population, Community, Ecosystem, Biosphere, Autecology and synecology. 2. Ecosystem 2.1 Types of ecosystems 2.2 Structure and Composition of Ecosystem 2.3 Food chain: Detritus and grazing food chains, Food web, Energy flow through the ecosystem, Ecological pyramids: Number, Biomass, and Energy.	9
2.	August 2023	2.4 concept of Eutrophication in lakes and rivers. 3. Population 3.1Characteristic of population. 3.2Exponential and logistic growth, 3.3 Population regulation Population interactions,Gause's Principle with laboratory and field interactions, 3.4 Quadrante, line and belt transect methods.	9
3.	September 2023	4. Community 4.1Community characteristics: species richness, dominance, diversity, abundance, vertical stratification, Eco tone and edge effect; Ecological succession with one example.	7
4.	October 2023	5. Animal interactions 5.1Introduction to Animal interactions 5.2 Types of Animal interactions 5.2.1-Competition 5.2.2- Beneficial Associations: . 5.3 Antagonistic associations	5
Total			30


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S.Y. B.Sc. Zoology Semester III

Subject Name :- **ZO 232 – Applied Zoology-I**

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

Sr. No.	Month	Topic	No. of Periods
2	August 2023	1) Sericulture: 16 1.1 An introduction to Sericulture, Study of different types of silk moths, their distribution, Taxonomic position and varieties of silk produced in India: Mulberry, Tassar, Eri and Muga silk moths. 1.2 External Morphology and life cycle of Bombyxmori. 1.3 Cultivation of mulberry: a) Varieties for cultivation, b) Rain fed and irrigated mulberry cultivation- Fertilizer schedule, Pruning methods and leaf yield. 1.4 Harvesting of 1.5 Silk worm	10
3	September 2023	1.6 Preparation of cocoons for marketing. 1.7 Post harvest processing of cocoons 1.8 Biotechnological and biomedical applications of silk 2) Agricultural Pests and their control: 14 2.1 An introduction to Agricultural Pests, types of pests (agricultural, store grain, veterinary).	10
4	October 2023	2.2 Major insect pests of agricultural importance (Marks of identification, life cycle, nature of damage and control measures). 2.3 Non insect pests: Rats, Crabs, Snails, and Squirrels 2.4 Pest control practices in brief and Concept of IPM in brief. 2.5 Plant protection appliances: Shoulder type Rotary duster, Knapsack sprayer, Cynogas Pump.	10
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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 2023	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 2023	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: 5.1 Nomenclature, Types and properties of enzymes. 5.2 Regulatory and non-regulatory enzymes.	10
3	October 2023	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 Semester II
Subject Name :- ZO 122 – Cell Biology
Teacher's Name- Prof. Kasar R. N.

Sr. No.	Month	Topic	No. of Periods
1.	December 2023	1. Introduction: 1.1 Introduction cell biology 1.2 Cell as basic unit of life. 1.3 Importance of Cell Biology and its applications 2. Overview of Cells Introduction to Prokaryotic and Eukaryotic cells. 3 Techniques in Cell Biology: 3.1 Introduction 3.2 Microscopy: Basic Principle, Simple, Compound and applications of Electron Microscope. 3.3 Stains and dyes: Types of Stain: Acidic, basic and neutral. Dye 3.4 Micrometry.	08
2.	January 2024	4 Plasma Membrane: 4.1Introduction 4.2 Structure of plasma membrane: Fluid mosaic model. 4.3Transport across membranes4.4 Other functions of Cell membrane in brief Protection, cell recognition, shape, storage, cell signalling. 4.5 Cell Junctions 5 Nucleus: Structure and function 5.1Introduction to Nucleus 5.2 Structure of Nucleus: Nuclear envelope, Nuclear pore complex, Nucleoplasm, Nucleolus 5.3 Chromatin: Eu-chromatin and Hetro-chromatin, nature and differences. 5.4 Functions of nucleus	10
3.	February 2024	6. Endomembrane System 6.1 Introduction 6.2 Structure, location and Functions: Endoplasmic Reticulum, Golgi apparatus, Lysosomes and vacuoles. 7. Mitochondria and Peroxisomes 7.1 Introduction 7.2 Mitochondria: ultrastructure and function of mitochondrion.	07
4.	March 2024	8. Cell Division 7.1 Introduction 7.2 Cell cycle (G1, S, G2, M phases), 7.3 Mitosis. 7.4 Meiosis.	05
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S.Y. B.Sc. Zoology Semester IV

Subject Name -: **ZO-242- Applied Zoology II**

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

Sr. No.	Month	Topic	No. of Periods
1.	December 2023	1. Apiculture: 16 1.1 An introduction to Apiculture, Systematic position, Study of habit, habitat and nesting behaviour of <i>Apis dorsata</i> , <i>Apis indica</i> , <i>Apis florea</i> and <i>Apis mellifera</i> . 1.2 Life cycle, Colony organization and Division of labour. 1.3 Bee behaviour and communication (Round Dance and Wag-Tail Dance). 1.4 Bee keeping equipments : a) Bee box (Langstroth type), b) Honey extractor, c) Smoker, d) Bee-veil, e) Gloves, f) Hive tool, g) Bee Brush, h) Queen excluder.	08
2.	January 2024	1.5 Bee keeping and seasonal management 1.6 Bee products (composition and uses): 1.7 Diseases and enemies of Bees : a) Bee diseases b) Bee pests -. c) Bee predators - 1.8 Bee pollination and management of bee colonies for pollination.	08
3.	February 2024	2. Fisheries : 14 2.2 An introduction to fisheries and its types (in brief) : Freshwater, Marine fisheries, Brackish water fisheries. 2.3 Habit, habitat and culture methods of following freshwater forms : 03 a) Rohu, b) Catla c) Mrigal 2.3 Harvesting methods of following marine forms:	08
4.	March 2024	2.4 Crafts and Gears in Indian Fishery: a) Crafts – Catamaran, Machwa, Dinghi. b) Gears – Gill net, Dol net, Rampani net, Cast net. 2.5 Fishery byproducts: 2.6 Fish preservation technique:	08
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T.Y. B.Sc. Zoology Semester IV
Subject Name :- ZO 363 - Molecular Biology
Teacher's Name- Prof. Kasar R. N.

Sr. No.	Month	Topic	No. of Periods
1	December 2023	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 2024	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 2024	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 2024	. 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
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