

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

Annual Teaching Planning 2022-2023

T.Y. B.Sc. Zoology Semester III

Subject Name -: **ZO 352 - Histology**

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

Sr. No.	Month	Topic	No. of Periods
1	October 2022	1. Introduction: Definition and Scope of Histology.	1 L
		2. Definitions and Review of Types of Tissues: 2.1 Epithelial tissue. 2.2 Connective tissue. 2.3 Nervous tissue. 2.4 Muscular tissue.	3 L
		3. Histological study of following mammalian organs: 3.1 Skin (V. S.). 3.2 Tooth (V. S.). 3.3 Tongue (C. S.) with reference to mucosa papillae and taste buds.	5 L
		4. Histological study of Alimentary canal and Liver: 4.1 Oesophagus (T. S.). 4.2 Stomach (T. S.). 4.3 Duodenum (T. S.). 4.4 Rectum (T. S.). 4.5 Liver (C. S.).	6 L
2	November 2022	5. Histological study of Respiratory organs: 5.1 Trachea (T. S.). 5.2 Lung (C. S.).	2 L
		6. Histological study of Excretory organs: 6.1 Kidney (L. S.). 6.2 Juxtaglomerular complex.	3 L
		7. Histological study of Reproductive organs: 7.1 Testis (T. S.) with reference to Seminiferous Tubules and Cells of Leydig. 7.2 Ovary (C. S.).	4 L
		8. Histology of Endocrine glands: 8.1 Pituitary gland. 8.2 Thyroid gland. 8.3 Adrenal gland. 8.4 Pancreas (C. S.) including both exocrine and endocrine components.	6 L
Total			30

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T.Y. B.Sc. Zoology Semester III
Subject Name :- ZO 353 - Biological chemistry
Teacher's Name- Prof. Kasar R. N.

Sr. No.	Month	Topic	No. of Periods
1	October 2022	1. Introduction of Biochemistry: Importance of Biochemistry in Life Sciences.	1 L
		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 L
		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.	7 L
		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 L
2	November 2022	4.5 Biological importance of proteins	2 L
		5. Enzymes: 5.1 Nomenclature, Types and properties of enzymes. 5.2 Regulatory and non-regulatory enzymes. 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.	10 L
		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.	3 L
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T.Y. B.Sc. Zoology Semester III
Subject Name :- ZO 3511 - Poultry Management
Teacher's Name- Prof. Kasar R. N.

Sr. No.	Month	Topic	No. of Periods
1	October 2022	1. Introduction to Poultry Farming: 1.1 Definition of Poultry, Importance of Poultry Farming and Poultry Development in India. 1.2 Present and future prospects.	2 L
		2 Breeding Management: 2.1 Male and female reproductive system of chicken. 2.2 Breeds and strains of broilers and layers of chicken. 2.3 General aspects of breeding for better egg production and body weight gain. 2.4 Selection and culling. 2.5 Artificial insemination.	5 L
		3 Housing Management: 3.1 Establishment of poultry farm. 3.2 Housing and equipment. 3.3 Incubation and hatching of eggs. 3.4 Broiler and layer management. 3.5 Lighting schedule for poultry. 3.6 Transport strategy of Poultry birds.	5 L
2	November 2022	4 Feeding Management: 4.1 Digestive system and Digestion Mechanism of chicken. 4.2 Feed ingredients. 4.3 Feed processing. 4.4 Formulation of feed viz., Starter, Grower, Layer, Finisher and Breeder ration, Feed conversion ratio (FCR), Nutritional deficiency conditions.	6 L
		5 Health Management: 5.1 Vaccination schedule for poultry birds. 5.2 Common poultry diseases, i. e. Ranikhet, Marek, Chicken pox, Gumboro, Infectious bronchitis and Chronic Respiratory Disease (CRD). 5.3 Control of internal and external parasites.	5 L
		6 Poultry Products: 6.1 Preservation and storage of eggs. 6.2 Grading of eggs and AGMARK standard of egg. 6.3 Egg powder. 6.4 Slaughtering and processing of chicken. 6.5 Poultry By Products – Feathers and Poultry Manure.	4 L
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Annual Teaching Planning 2022-2023
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	February 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 L
		2. Central Dogma of Molecular Biology: 2.1 DNA Replication - Semiconservative (Messelson and Stahl experiment), Basic mechanism of replication in prokaryotes and eukaryotes.	3L
2	March 2023	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,	10L
3	April 2023	Basic mechanism of Translation in E. coli and eukaryotic cells.	2 L
		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.	1 L 3 L 4 L
Total			30

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T.Y. B.Sc. Zoology Semester IV
Subject Name :- ZO 365 - Techniques in Biology
Teacher's Name- Prof. Kasar R. N.

Sr No.	Month	Topic	No. of Periods
1	February 2023	1. Microscopy: 1.1 Definitions - Resolving Power, Limit of Resolution and Magnification, Numerical Aperture. 1.2 Basic principle of microscopes - Light, Fluorescence, Phase Contrast, Stereo Microscope, SEM and TEM.	3 L
		2. Microtomy: Tissue fixation and Processing 2.1 Methods of tissue fixation 2.2 Procurement of tissue and importance of fixation of tissues. 2.3 Dehydration, clearing, impregnation, embedding and block making. 2.4 Types of microtomes. 2.5 Section cutting 2.6 Mounting and spreading of ribbons. 2.7 General procedure for staining of sections. 2.8 Demonstration of Nucleic acid.	8 L
2	March 2023	3. Haematological Techniques: 3.1 Total count of RBCs, WBCs and Differential count of WBCs and their significance. 3.2 Bleeding time, clotting time and their significance.	2 L
		4. Immunological Techniques: 4.1 Antigen-Antibody Interactions – Immunodiffusion. 4.2 Principle & Working of ELISA. 4.3 Raising Monoclonal Antibodies. 4.4 Application of Immunological techniques in disease diagnosis.	3 L
		5. Types of PCR & DNA Barcoding :	2 L
3	April 2023	6. Methods in Biodiversity: 6.1 Introduction to sampling and sample size. 6.2 Biodiversity Indices. 6.3 Measuring Biodiversity	4 L
		7. Instruments in Field Biology: 7.1 Binoculars, GPS, Basic digital camera techniques 7.2 Adapters for camera and microscopes, Mobile’s camera.	3 L
		8. Laboratory techniques: 8.1 Microphotographic techniques - CCD and CMOS camera, digital camera. 8.2 Software for image analysis	3 L
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T.Y. B.Sc. Zoology Semester IV
Subject Name :- ZO 3610 - Environmental Impact Assessment
Teacher's Name- Prof. Kasar R. N.

Sr No.	Month	Topic	No. of Periods
1	February 2023	1. Environment: 1.1 Definition. 1.2 Divisions. 1.3 Importance.	2 L
		2. Pollution: 2.1 Definition and types. 2.2 Impact on wildlife, natural resources, development.	3 L
2	March 2023	3. Sustainable development: 3.1 Definition and need. 3.2 Exploitation of natural resources. 3.3 Concept of carrying capacity. 3.4 Three pillars of Sustainability. 3.5 UN 17 Sustainable Development Goals (SDGs).	3 L
		4. Overview of Environmental Protection acts: 4.1 The Air (Prevention and Control of Pollution) Act 1981. 4.2 The Water (Prevention and Control of Pollution) Act 1974. 4.3 The Environment Protection Act 1986.	3 L
3	April 2023	4.4 The National Green Tribunal Act 2010. 4.5 Biological Diversity Act 2002.	2L
		5. Environmental Impact Assessment (EIA): 5.1 Definition, need and importance of EIA.	2L
Total			15