

K.T. S. P. Mandal's
Hutatma Rajguru Mahavidyalaya, Rajgurunagar.
Department of Zoology
Teaching Plan

A.Y.-2023-2024

Class- F.Y. B. Sc.
Course Title: Cell biology

Paper II ZO 122
Semester II

Month	Title	Teacher Name
Jan	<p>Introduction: 1.1 Introduction cell biology, 1.2 Cell as basic unit of life. 1.3 Importance of Cell Biology and its applications in industry.</p> <p>Overview of Cells 1.3 Introduction to Prokaryotic and Eukaryotic cells. 1.4 Structure and function of Prokaryotic (<i>E. coli</i>) 1.5 Structure and function of Eukaryotic cells (Animal and Plant Cell)</p>	SVT
Jan	<p>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 (Preparation and chemistry of dyes not expected) 3.4 Micrometry.</p>	SVT
Feb	<p>Plasma Membrane: 4.1 Introduction 4.2 Structure of plasma membrane: Fluid mosaic model. 4.3 Transport across membranes: Active and Passive transport, Facilitated transport, exocytosis, endocytosis, phagocytosis – vesicles and their importance in transport. 4.4 Other functions of Cell membrane in brief Protection, cell recognition, shape, storage, cell signalling. 4.5 Cell Junctions: Tight junctions, gap junctions, Desmosomes.</p>	SVT
Feb	<p>Nucleus: Structure and function 5.1 Introduction to Nucleus 5.2 Structure of Nucleus: Nuclear envelope, Nuclear pore complex, Nucleoplasm, Nucleolus</p>	SVT

	5.3 Chromatin: Eu-chromatin and Hetro-chromatin, nature and differences. 5.4 Functions of nucleus apparatus, Lysosomes and vacuoles.	
March	Endomembrane System 6.1 Introduction 6.2 Structure, location and Functions: Endoplasmic Reticulum, Golgi Mitochondria and Peroxisomes 7.1 Introduction 7.2 Mitochondria: ultrastructure and function of mitochondrion.	SVT
March	7.3 Peroxisomes Cell Division 7.1 Introduction 7.2 Cell cycle (G1, S, G2, M phases), 7.3 Mitosis. 7.4 Meiosis.	SVT

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A.Y.-2023-2024

Class- S.Y. B. Sc.

Paper II

Course Title: Applied Zoology II

Month	Title	Teacher Name
Feb	<p>Apiculture:</p> <p>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>.</p> <p>1.2 Life cycle, Colony organization and Division of labour.</p> <p>1.3 Bee behaviour and communication (Round Dance and Wag-Tail Dance) .</p> <p>1.4 Bee keeping equipment:</p> <p>a) Bee box (Langstroth type), b) Honey extractor, c) Smoker, d) Bee-veil, e) Gloves, f) Hive tool, g) Bee Brush, h) Queen excluder</p>	SVT
Feb	<p>1.5 Bee keeping and seasonal management.</p> <p>1.6 Bee products (composition and uses) :</p> <p>a) Honey, b) Wax, c) Bee Venom, d) Propolis, e) Royal jelly, f) Pollen.</p> <p>1.7 Diseases and enemies of Bees :</p> <p>a) Bee diseases - Protozoan (Nosema), Bacterial (American foul brood), Viral (Sac brood), Fungal (Chalk brood). b) Bee pests - Wax moth (Greater and Lesser), Wax beetle. c) Bee predators - GreenBee eater, King crow, Wasp, Lizard.</p> <p>1.8 Bee pollination and management of bee colonies for pollination.</p>	SVT
March	2. Fisheries :	

	<p>2.2 An introduction to fisheries and its types (in brief) : Freshwater fisheries, Marine fisheries, Brackish water fisheries.</p> <p>2.3 Habit, habitat and culture methods of following freshwater forms : a) Rohu (<i>Labeo rohita</i>), b) Catla (<i>Catla catla</i>), c) Mrigal (<i>Cirrhinus mrigala</i>).</p> <p>2.3 Harvesting methods of following marine forms: a) <i>Harpodon</i>, b) Mackerel, c) Pearl oyster.</p>	SVT
April	<p>2.4 Crafts and Gears in Indian Fishery: a) Crafts – Catamaran, Machwa, Dinghi. b) Gears – Gill net, Dol net, Rampani net, Cast net.</p> <p>2.5 Fishery byproducts: a) Fish meal, b) Fish flour, c) Fish Liver oil, d) Fish manure, e) Fish fin soup.</p> <p>2.6 Fish preservation technique: a) Chilling, b) Freezing, c) Salting, d) Drying, e) Canning</p>	SVT

As per mention above 95% syllabus is completed and remaining will be complete in first week of April 2024.

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Teaching Plan
(A.Y. 2023 - 2024)
T. Y. B. Sc. Zoology
ZO- 364 Entomology

Sr. No	Month	Topic	Professor
1	Jan	1. Fundamentals of Entomology 1.1 Definition and scope of Entomology. 1.2 General Classification of Insects. 1.3 General Characters of Insects.	SVT
2	Jan	2. Insect Morphology: 2.1 Insect Integument and its derivatives. 2.2 Insect Head, Head Orientations, Head articulations, Insect antennae and Mouth parts. 2.3 Insect Thorax, Insect Wing and modifications, Insect Leg and Modifications - a) Cursorial - Cockroach, b) Fossorial - Mole cricket, c) Saltorial - Grasshopper, d) Raptorial - Praying mantis, e) Pollen basket - Honey bee. 2.4 Insect Abdomen, Genital and Pre - genital appendages of Grasshopper.	SVT
3	Feb	3. Insect Anatomy (Grasshopper): 3.1 Digestive System. 3.2 Circulatory System. 3.3 Nervous System. 3.4 Respiratory System. 3.5 Reproductive System.	SVT

4	Feb	<p>4. Insect Ecology:</p> <p>4.1 Definition of Insect Ecology.</p> <p>4.2 Abiotic Factors (Photoperiod, Temperature and Humidity) and Biotic Factors (Food, Foraging and Nesting).</p> <p>4.3 Mimicry in insects with suitable examples.</p>	SVT
5	March	<p>5. Insect Metamorphosis:</p> <p>5.1 Definition.</p> <p>5.2 Types and examples of Metamorphosis.</p>	SVT
6	March	<p>6. Insects as social groups:</p> <p>6.1 Definition & significance of Eusociality, Intraspecific and Interspecific relationships among insects.</p> <p>6.2 Social organization in Wasps and Termites.</p>	SVT
7	April	<p>7. Economic Importance of Insects:</p> <p>7.1 Insects in Research.</p> <p>7.2 Insects in Medicines and Cosmetics.</p> <p>7.3 Insects as Vectors.</p> <p>7.4 Insects as food.</p>	SVT

As per mention above 95% syllabus is completed and remaining will be complete in April 2024.



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Teaching Plan
(A.Y. 2023 - 2024)
T. Y. B. Sc. Zoology
ZO - 3611 Project

Students have successfully completed the research project in the stipulated time and present the dissertation at the time of the examination in a proper format. Students were encouraged from laboratory work, hands-on practical investigation and design experimental setup. Field work to be carried out under proper supervision and permissions from the concerned authorities.

Possible key aspects of the project work -

- 1. Planning the project**
- 2. Selecting a suitable title**
- 3. Significance of the work**
- 4. Hypothesis, Objectives**
- 5. Reviewing the available literature**
- 6. Methodology to be used**
- 7. Outcomes of the Project work**
- 8. Conclusion and Discussion**
- 9. Future plans**

Future Plan:

All the students Research projects will try to publish in UGC care list Research Journals.



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