

K.T. S. P. Mandal's
Hutatma Rajguru Mahavidyalaya, Rajgurunagar.
Department of Zoology
Syllabus Completion report
A.Y.-2023-2024

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

Paper II ZO 122
Semester II

Month	Title	Teacher Name
Jan	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. 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)	SVT
Jan	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.	SVT
Feb	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.	SVT
Feb	Nucleus: Structure and function 5.1 Introduction to Nucleus 5.2 Structure of Nucleus: Nuclear envelope, Nuclear pore complex, Nucleoplasm, Nucleolus	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	Apiculture: 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 equipment: a) Bee box (Langstroth type), b) Honey extractor, c) Smoker, d) Bee-veil, e) Gloves, f) Hive tool, g) Bee Brush, h) Queen excluder	SVT
Feb	1.5 Bee keeping and seasonal management. 1.6 Bee products (composition and uses) : a) Honey, b) Wax, c) Bee Venom, d) Propolis, e) Royal jelly, f) Pollen. 1.7 Diseases and enemies of Bees : 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. 1.8 Bee pollination and management of bee colonies for pollination.	SVT
March	2. Fisheries : 2.2 An introduction to fisheries and its types (in brief) :	SVT

	<p>Freshwater fisheries, Marine fisheries, Brackish water fisheries.</p> <p>2.3 Habit, habitat and culture methods of following freshwater forms :</p> <p>a) Rohu (<i>Labeo rohita</i>) ,</p> <p>b) Catla (<i>Catla catla</i>) ,</p> <p>c) Mrigal (<i>Cirrhinus mrigala</i>).</p> <p>2.3 Harvesting methods of following marine forms:</p> <p>a) <i>Harpodon</i>,</p> <p>b) Mackerel,</p> <p>c) Pearl oyster.</p>	
April	<p>2.4 Crafts and Gears in Indian Fishery:</p> <p>a) Crafts – Catamaran, Machwa, Dinghi.</p> <p>b) Gears – Gill net, Dol net, Rampani net, Cast net.</p> <p>2.5 Fishery byproducts:</p> <p>a) Fish meal,</p> <p>b) Fish flour,</p> <p>c) Fish Liver oil,</p> <p>d) Fish manure,</p> <p>e) Fish fin soup.</p> <p>2.6 Fish preservation technique:</p> <p>a) Chilling,</p> <p>b) Freezing,</p> <p>c) Salting,</p> <p>d) Drying,</p> <p>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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Syllabus completion Report (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	4. Insect Ecology: 4.1 Definition of Insect Ecology. 4.2 Abiotic Factors (Photoperiod, Temperature and	SVT

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

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Syllabus completion Report

(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.



A handwritten signature in blue ink, reading 'S. V. Theurkar'.

**Prof. Dr. Theurkar S.V.
Department of Zoology**