



B.Sc. Zoology Semester III

US03MAZOO01 (T)

Effective from June 2025

Zoology Major Course

Course Code	US03MAZOO01[T]	Title of the Course	INVERTEBRATA & ECONOMIC ZOOLOGY
Total Credits of the Course	04	Hours per Week	04
Course Objectives:	To make students familiar with: 1. To Give an Overview Invertebrate & Applied Zoology. 2. To provide Detail about the Types study of Major Invertebrates and General account. 3.To Provide out line of Economic aspects of Zoology		

Course Content		
Unit	Description	Weightage* (%)
1.	Type: Hydra (Habit & Habitat, External morphology, Internal structure, Nematocysts, Locomotion, Nutrition, Respiration, Excretion, Osmoregulation, Nervous, Behaviour, Reproduction, Regeneration, Immortality in Hydra) • Polymorphism in Coelentrates. • Corals and Coral reefs	25%
2.	Type: Taenia Solium (Habit & Habitat, External Morphology, Digestive System, Respiration, Excretory System, Reproductive System, Life cycle & Development, Parasitic Adaptations. Type: Hirudinea granulosa (Leech) ((Habit & Habitat, External Morphology, Body wall, Locomotion, Digestive System, Respiration, Excretory System, Nervous System, Sense organs, Reproductive System, Lifecycle & Development, Parasitic Adaptations of Leech)	25%
3.	Type: Prawn (Habit & Habitat, External Morphology,	25%



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	Locomotion, Digestive System, Respiratory system, Excretory System, Nervous System, Sense organs, Reproductive System, Lifecycle & Development) • Types of mouth parts in Insects • House hold insects and methods of Insects control • Respiration in Arthropoda	
4.	Economic Zoology: Including Life Cycle • Apiculture • Lac culture • Sericulture • Prawn culture • Pearl culture Pharmaceuticals from Animals and its advancement.	25%

Teaching-Learning Methodology	• Class room interactions • By chalk –duster method • By using OHP- Power point presentation • By Giving project work • By giving Students seminar, unit test, assignment • Question bank circulation • Arranging guest talk
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Evaluation Pattern

Sr. No.	Details of the Evaluation	Weightage
1.	Internal Marks-Exam Pattern: Class test-15 marks (30%), Quiz-15marks (30%), Active learning-5marks (10%), Home assignment-5marks (10%), Class assignment-5marks (10%),Attendance-5marks (10%)	50% (50 Marks)
2.	External Marks (10marks MCQs + 10marks descriptive Questions From each 4- unit)	50% (50 Marks)

Course Outcomes:



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1.	To improve the scientific awareness among the students.
2.	Type study will provide detail about anatomy and physiology of the Major Invertebrate animals.
3.	The students can have General account Idea of the Invertebrates and Economic Usefulness of Invertebrate Animals

Sr. No.	Reference Books:
1.	Modern Text book of Zoology – Invertebrate by R.L.Kotpal
2.	Invertebrate Zoology by- Jordan & Verma
3	Economic Zoology by Shukla &Upadhyay

On-line Resources :
https://www.biologydiscussion.com/zoology/
https://www.slideshare.net/

B.Sc. Zoology Semester III US03MAZOO02 (T) Effective from June 2025 Zoology Major Course

Course Code	US03MAZOO02[T]	Title of the Course	PHYSIOLOGY & ADAPTATION
Total Credits of the Course	04	Hours per Week	04
Course Objectives:	To make students familiar with: 1. The details about the three system Physiology of mammals and related abnormalities. 2.To provide adaptive changes which acquired by the animals in different ecosystem		



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Course Content		
Unit	Description	Weightage* (%)
1.	ENDOCRINOLOGY • Hypothalamus and Pituitary • Thymus • Thyroid and Parathyroid • Pancreas • Adrenal • Ovary and testis • Disorders: Diabetes Type 1,2 and Insipidus, Hyperthyroidism.	25%
2.	RESPIRATION& CIRCULATION • Respiratory Organs • Pulmonary Ventilation • Lung Volumes & Capacity • Transport of Gases, Regulation of Respiration • Disorders: Asthma, Cystic fibrosis, Emphysema, Pneumonia, Bronchitis, Tuberculosis. • Structure & working mechanism of Heart • Cardiac Cycle & ECG.	25%
3.	NERVOUS SYSTEM • Structure and Functions of Neurons and Nerves • Transmission of Impulses • Central nervous System • Peripheral Nervous System • Disorders: Catalepsy, Alzimer's, Epilepsy, Meningitis	25%
4.	ADAPTATIONS IN ANIMALS • Terrestrial: Desert, Burrowing, Cursorial, Arboreal, Volant • Aquatic adaptation • Special: Mimicry, Camouflage, Echolocation in Bat, Electric organs in Fish	25%

Teaching-Learning	• Class room interactions • By chalk –duster method
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Methodology	• By using OHP- Power point presentation • By Giving project work • By giving Students seminar, unit test, assignment • Question bank circulation • Arranging guest talk
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Marks-Exam Pattern: Class test-15 marks (30%), Quiz-15marks (30%), Active learning-5marks (10%),Home assignment-5marks (10%), Class assignment-5marks (10%),Attendance-5marks (10%)	50% (50 Marks)
2.	External Marks (10marks MCQs + 10marks descriptive Questions From each 4- unit)	50% (50 Marks)

Course Outcomes:	
1.	To improve the scientific awareness among the students.
2.	The students will learn about detail physiology of Respiratory and Circulatory Systems helps respiration, Nervous system and transmission on nerve impulses & Endocrine glands and its hormonal functions and abnormalities.
3.	The students will learn about the acquired adaptations due to different ecosystem

Sr. No.	Reference Books:
1.	A Text book of Animal Physiology by A.K. BERRY.
2	Zoology for IAS by SATGURUPRASAD
3	Principles of Anatomy & Physiology by TORTORA and GRABOWSKI
4	Animal Physiology by M.P. ARORA.



On-line Resources :

<https://www.biologydiscussion.com/zoology/>

<https://www.slideshare.net/>

B.Sc. ZOOLOGY, SEMESTER-III
US03MAZOO03, PRACTICAL – MAJOR ZOOLOGY

Effective from June 2025

Course Code	US03MAZOO03 (P)	Title of the Course	ZOOLOGY PRACTICAL
Total Credits of the Course	04	Hours per Week	08
Course Objectives:	To make students familiar with: 1. To Provide detail about animals and their Identification through Preserved animals & Study of system through animation and chart. 2. To Provide an Idea of mammalian Physiology through real time practical 3. To provide Behavioral aspect of Animals and their adaptations.		

Course Content		
Unit	Description	Weightage* (%)
Part-1.	CLASSIFICATION OF INVERTEBRATES (UP TO ORDERS): • PROTOZOA & PORIFERA: Ceratium, Arcella, Polystomella, Opalina, Vorticella, Trypanosoma, Sicon, Hylonema, Spongilla, Spicules, Gemmule and Spongin fibres of sponges • COELENTERATA & HELMINTHES: Hydra, Obelia, Milipora, Aurelia, Pennatula, Zooanthus, L. S. of Hydra, T. S. passing through Testis and Ovary of Hydra, Obelia medusa, Planaria, Bipalium, Pin worm, Guinea worm	50%

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	• ANNELIDA & ARTHROPODA: Aphrodite, Arenicola, Earthworm, Leech, Centipede, Cyclops, Prawn, Mantis, Beetle, Lacinsect, Honeybee, Termite, Limulus, Scorpion • MOLLUSCA & ECHINODERMATA: Murex, Aplysia, Sepia, Pearloyster, Nautilus, Starfish, Brittlestar, Featherstar, Seurchin, Seacucumber, Balanoglossus • Taenia Solium life cycle stages Dissection by Simulation, Animation or Charts • Leech: External characters, Digestive System, Reproductive System, Nervous System Mountings of Salivary glands, Jaws, Testicular nephridia • Prawn: External characters, Digestive System, Reproductive System, Nervous System • Appendages of Prawn • Types of mouth parts in Insects • Field Visit	
Part-2.	Mammalian Histology: T.S. of Pituitary gland, Adrenal Gland, Thyroid Gland, Thymus Gland, Pineal Gland, Pancreases, Testis and Ovary • T.S of lung, trachea, alveoli, Neuron, Nerve, Heart, Artery and Vein Hematology test effecting oxygen carrying • RBC counting • Hb Estimation • Effect of osmotic pressure on RBC • To Observe Rouleaux condition of RBC • Terrestrial Adaptation • Aquatic Adaptation • Aerial Adaptation	50%

Teaching-Learning Methodology	• Using student's Microscope • Observation of specimens • Using certain chemicals for test • Learn through chart /Model/ Video/ ppt • Field visit, Project submission • Preparing journal through various diagrams & description
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Evaluation Pattern

Sr. No.	Details of the Evaluation	Weightage
1.	Internal Examination evaluation includes Lab Work Assignment-20 marks (40%), Viva-voce- 10marks (20%), Lab Quiz-10 marks (20%), Journal certification- 6 marks (12%), Attendance-active participation- 4 marks(8%)which makes total 50 Marks.	50%
2.	External Examination Evaluation includes Lab work Assignment-40 marks (80%), Viva-voce/Lab Quiz-10 marks (20%), which makes total 50 Marks.	50%

Course Outcomes:

1.	The students will learn Characteristics from real preserved animals and type of Animals through Animation
2.	To make students to understand the role of animals and their importance in life.
3.	Students will come to know about histological features of different organs through permanent slides.
4.	The students will also learned RBCs counting, Hb estimation and importance of blood test and their diagnosis.
5.	Students will also learned about osmosis and importance of minerals in our body.

Suggested Reference Books:

Sr. No.	Reference Books
1.	A Manual of Practical Zoology- Invertebrate by P.S.VERMA
2.	Practical Physiology, Anatomy & Biochemistry by SHAH, PATEL& GOEL



3	Practical Zoology Invertebrate by S.S. LAL
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On-line resources :

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B.Sc. Zoology, Semester III
US03IDZOO01 (T)
Effective from June 2025
Zoology Inter disciplinary Course

Course Code	US03IDZOO01 (T)	Title of the Course	FOOD AND NUTRITION-I
Total Credits of the Course	02	Hours per Week	02
Course Objectives:	To make students familiar with: 1. To Give an Idea of Different food sources from various food items and preparations for balanced nutrition, 2. Sources of Minerals and Vitamins from food		

Course Content		
Unit	Description	Weightage* (%)
1.	Food and Sources: • Source and Types of Carbohydrate. • Source and Types of Protein • Source and Types of Fat [Lipid] • Source and Types of Nucleic Acids • Guidelines for Healthy Eating	50%



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2.	Nutrition: • Source and Types of Minerals • Source and Types of Vitamins • Digestion of Carbohydrate, Protein, Fat [Lipid], Nucleic Acids • heat and energy balance • Disorders: Hypothermia, Fever and Obesity	50%
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Teaching-Learning Methodology	• Class room interactions • By chalk –duster method • By using OHP- Power point presentation • By Giving project work • By giving Students seminar, unit test, assignment • Question bank circulation • Arranging guest talk
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Evaluation Pattern

Sr. No.	Details of the Evaluation	Weightage
1.	Internal Examination Evaluation includes Class test-10 marks(40%), Quiz -5 marks(20%), Home assignment-5 marks (20%), Attendance-5 marks(10%) which makes total 25 marks	50%
2.	External Examination [MCQs (5marks from all units) + Discriptive Questions(10 marks from each unit) total -25marks	50%

Course Outcomes:

1.	The students will learn about Different types of Food stuff with specialized source of food.
2.	Nutritional value of food containing, Vitamins and Minerals

Suggested Reference Books:



Sr. No.	Reference Books
1.	A Text book of Animal Physiology by A.K.BERRY.
2.	Animal Physiology by M.P.ARORA.
3.	Principles of Anatomy & Physiology by TORTORA and GRABOWSKI

On-line resources

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B.Sc. ZOOLOGY, SEMESTER-III

US03IDZOO02 (P)

Effective from June 2025

Course Code	US03IDZOO02 (P)	Title of the Course	ZOOLOGY PRACTICAL
Total Credits of the Course	02	Hours per Week	02
Course Objectives:	To make students familiar with: 1. To Give an Idea of Different food sources from various food items and preparations for balanced nutrition, 2. Sources of Minerals and Vitamins from food.		

Course Content

Unit	Description	Weightage* (%)
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	Samples of Food of carbohydrate • Samples of Food of Protein • Samples of food of Lipids • Samples of Food of Vitamins • Acid and Alkaline water test • Colour and Precipitation Reactions on Carbohydrates • Colour and Precipitation Reactions on Protein • Colour and Precipitation Reactions on Lipids	
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Teaching-Learning Methodology	• Using student's Microscope • Observation of specimens • Using certain chemicals for test • Learn through chart /Model/ Video/ ppt • Field visit, Project submission • Preparing journal through various diagrams & description
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Examination Evaluation includes--Lab work Assignment-10marks (40%), Viva-voce-5marks (20%), Lab quiz-5 marks(20%), Journal certification-3marks(12%), Attendance-active participation-2marks (8%) which makes total 25 marks.	50%
2.	External Examination Evaluation includes- --Lab work Assignment-20marks (80%), Viva-voce/Lab quiz-05 marks (20%), which makes total 25 marks.	50%

Course Outcomes:	
1.	The students will learn about Different types of Food stuff with specialized source of food.
2.	Nutritional value of food containing, Vitamins and Minerals
3.	To improve scientific attitude in diet and know that how to test the different types of



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	food.
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Suggested Reference Books:

Sr. No.	Reference Books
1.	Principles of Anatomy & Physiology by TORTORA and GRABOWSKI
2.	Practical Physiology, Anatomy & Biochemistry by SHAH, PATEL& GOEL

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