

# **DEPARTMENT OF ZOOLOGY**

## **B.SC. ZOOLOGY SYLLABUS**

**BATCH: 2022-2025**

### **FACULTY MEMBERS**

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**NALLAMUTHU GOUNDER MAHALINGAM COLLEGE**

**(AN AUTONOMOUS INSTITUTION AFFILIATED TO BHARATHIAR UNIVERSITY)**

**RE ACCREDITED BY NAAC**

**AN ISO 9001:2015 CERTIFIED INSTITUTION**

**POLLACHI – 642 001**

**COIMBATORE (DT.) TAMIL NADU**

# Department of Zoology

## Vision

Enlightening the students with total dedication to bring out the hidden skills, creativity and human excellence with due emphasis on knowledge about recent development in the field of biology and mould them as responsible citizens.

## Mission

Meta morphosing the students holistically through seminars, symposia, guest lectures, group discussions, shared class experiences, assignments, nature club, job opportunities, and healthy practices to express the excellence within.

### Program Educational Objectives:

<b>PEO1</b>	<b>Enhanced the professional skills by means of continuous education and development.</b>
<b>PEO2</b>	<b>Express a mastery of discipline, precise information and exhibit analytical and practical skills. Exhibit professional interegrity and the capability for ethical decision making</b>
<b>PEO3</b>	<b>Graduate will recognize the need and apply their knowledge in general and various discipline areas.</b>
<b>PEO4</b>	<b>Pursue lifelong learning and continuous improvement of their knowledge and skills in the diverse field with the highest professional and ethical standards.</b>
<b>PEO5</b>	<b>Skill to function on multidiscipline environment to meet desired needs within realistic constraints such as environmental, social, ethical, health, safety, and sustainability</b>

## Program Outcomes:

<b>PO1</b>	<b>Scientific Temper, Individual and Team Work Communication</b> Students gain information and skill in the fundamentals of animal sciences, understands the multifarious connections along with different living organisms.
<b>PO2</b>	<b>Inter-disciplinary Exposure</b> Students achieve knowledge of internal structure of cell, its functions in control of various metabolic functions of organisms. Correlates the physiological, Biochemical processes of animals and relationship of organ systems.
<b>PO3</b>	<b>Education and Society Environment and Sustainability</b> Understanding of environmental conservation processes, pollution control methods and its importance. Students also gain knowledge and awareness about biodiversity as well as the importance of protection of endangered species.
<b>PO4</b>	<b>Vocational and Industry Exposure</b> Understands about various concepts and importance of Biotechnology, Bioinformatics, Genetics, Genetic engineering in industry and day today human life.
<b>PO5</b>	<b>Problem Analysis</b> Students will be able to compare and distinguish the characteristics of animals that discriminate them from other forms of life.
<b>PO6</b>	<b>Innovation and Entrepreneurship</b> Achieve knowledge in applied fields like Sericulture, Aquaculture and Apiculture alongside Statistical and Laboratory techniques.
<b>PO7</b>	<b>Life-long Learning</b> Understanding of Zoology to one's own life and apply the knowledge judiciously and remain constantly employable.

## Program Specific Outcomes:

<b>PSO – 01</b>	To understand the life of organisms with their diversity, morphological, ecological, physiological and evolutionary significance at cellular and molecular level.
<b>PSO – 02</b>	To understand the principals and applications of zoology in daily life by equipping practical and field based study knowledge.

<b>Programme Code:</b>	B.Sc.,			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY101			<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs./Week</b>	6	<b>Tutorial Hrs./Sem.</b>	--	<b>Core –I</b>	<b>Semester:</b>	I
				Non chor data	<b>Credits:</b>	5

### Course Objective

To understand the non chordates animal groups under different phyla in animal kingdom

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember the outline classification of nonchordata	K1
CO2	Understand the structure and inter-relationship between nonchordate animals.	K2
CO3	Deploy the each phylum general characters with an example	K3
CO4	Discuss the general topics of each phylum	K4
CO5	Assess the internal structure of nonchordate organisms	K5

### Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	H	L	L	-	H	-	H	H	M
CO2	H	H	L	-	H	-	M	H	L
CO3	M	M	M	-	H	-	L	H	M
CO4	H	L	M	-	H	-	L	H	M
CO5	M	H	H	-	H	-	H	H	L

H-High; M-Medium;L-Low;

<b>Programme Code:</b>	B.Sc.,		<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY203		<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Practical Hrs./Week</b>	3	<b>Tutorial Hrs./Sem.</b>	Core Lab –I Nonchordata & Chordata (Non semester Pattern)	<b>Semester:</b>	I & II
		--		<b>Credits:</b>	4

### Course Objective

To understand the non chordate animal groups under different phyla in animal kingdom

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember external and internal features of organisms	K1
CO2	Understand the unity of life with the rich diversity of organisms and their ecological, and evolutionary significance	K2
CO3	Evaluate the conservation awareness of the biosphere by field visit	K3
CO4	Acquire knowledge about biological significance of organisms	K4
CO5	Analyse the reasons for classification of organisms	K4

### Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	H	H	M	-	H	-	H	H	M
CO2	H	H	L	-	H	-	M	H	M
CO3	H	H	M	-	H	-	L	H	M
CO4	M	H	L	-	H	-	L	H	L
CO5	H	H	M	-	H	-	L	H	M

H-High; M-Medium;L-Low;

<b>Programme Code:</b>	B.Sc.,			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UBY1A1			<b>Title:</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs /Week</b>	6	<b>Tutorial Hrs/Sem.</b>	--	<b>Allied –I</b> Invertebrates and Vertebrates ( For I B. Sc., Botany Program)	<b>Semester :</b>	I
					<b>Credits:</b>	4

### Course Objective

The students are able to analyze the levels of organization and general characters of various invertebrate and vertebrate phyla.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Keep in mind the outline classification of Invertebrates and Vertebrates	K1
CO2	Understand the structure and inter-relationship between Invertebrates and Vertebrate animals.	K2
CO3	Assess the each phylum general characters with an example	K3
CO4	Analyze the biodiversity of Invertebrates and Vertebrates	K4
CO5	Evaluate invertebrate and vertebrate their affinities and adaptationsto different modes of life.	K5

### Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	H	H	M	L	M	L	H	H	H
CO2	H	H	L	L	M	L	H	H	M
CO3	H	M	M	M	L	M	H	M	H
CO4	H	H	L	M	L	M	H	H	M
CO5	H	M	H	L	M	M	H	M	M

H-High; M-Medium;L-Low;

<b>Course Code:</b>	22UBY2A3		<b>Title</b>	<b>Batch :</b>	2022 – 2025
			Allied Lab-I- Zoology Practical – (Paper I & II)For B. Sc., Botany Program	<b>Semester:</b>	I & II
<b>Practical Hrs/ Week</b>	<b>2</b>	<b>Tutorial Hours/ Sem</b>	--	<b>Credits:</b>	<b>2</b>

### Course Objectives

To get the knowledge on biological systems through virtual dissection, analyzing the results and discussing the economic importance observation pertain to various animal specimen and develop skills in identifying fauna in campus

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember external and internal features of organisms	K1
CO2	Understand the unity of life with the rich diversity of organisms and their ecological, and evolutionary significance	K2
CO3	Evaluate the conservation awareness of the biosphere by field visit	K3
CO4	Acquire knowledge about biological significance of organisms	K4
CO5	Analyse the reasons for classification of organisms	K5

### Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	H	H	M	-	M	M	H	H	M
CO2	H	H	M	-	M	L	H	H	M
CO3	H	M	M	-	L	L	H	H	H
CO4	H	H	L	-	L	M	H	M	M
CO5	H	M	H	-	M	M	H	H	L

H-High; M-Medium;L-Low;

<b>Programme Code:</b>	B.Sc.,		<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY202		<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs./Week</b>	6	<b>Tutorial Hrs./Sem.</b>	--	<b>Core-II Chordata</b>	<b>Semester:</b> II
				<b>Credits:</b>	4

### Course Objectives

To acquire a basic knowledge of chordates and biodiversity of Organisms

### Course Outcome

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Keep in mind the outline Classification of Chordata	K1
CO2	Understand the morphology of Chordata	K2
CO3	Execute inter-relationship between each class	K3
CO4	Analyse the biodiversity of chordata	K4
CO5	Discuss the internal structure of chordate and its function	K5

### Mapping

PO /PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO									
CO1	H	M	M	-	H	-	H	H	M
CO2	H	M	M	-	H	-	M	H	M
CO3	M	M	M	-	H	-	H	H	M
CO4	H	M	M	-	H	-	H	H	M
CO5	M	H	H	-	H	-	H	H	M

H-High; M-Medium;L-Low;



<b>Programme code:</b>	B. Sc.,			<b>Programme Title :</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UBY2A2			<b>Title</b>	<b>Batch :</b>	2022 – 2025
				Allied Paper – II Economic Zoology		
<b>Lecture Hrs/Week</b>	6	<b>Tutorial Hours/ Sem</b>	---		<b>Credits:</b>	4

### Course Objectives

To acquire the knowledge on application of zoology in the field of aquaculture, apiculture, dairy farming, sericulture, poultry keeping, and pest and pest management.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge level
CO1	Remember the knowledge of applied aspects of biological sciences	K1
CO2	understand the rearing methods of beneficial organisms – an economic perspectives	K2
CO3	Apply the knowledge of Culture of oyster, Honey bee, Silkworm and poultry management in marketing field.	K3
CO4	Analyze the diseases and control measure of beneficial organism .	K4
CO5	Start their own agro based industries and business in applied biology	K5

### Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	H	M	L	M	M	H	H	H	H
CO2	M	L	L	L	H	M	H	M	M
CO3	M	L	M	M	M	H	H	M	H
CO4	H	M	L	L	M	H	H	H	H
CO5	H	M	M	L	L	M	H	M	M

H-High; M-Medium;L-Low;

<b>Programme Code:</b>	B.Sc.,			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22EVS201			<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs./Week</b>	2	<b>Tutorial Hrs./Sem.</b>	12	Environmental Studies (EVS)	<b>Semester:</b>	II
					<b>Credits:</b>	2

### Course Objective

To know the basic concepts of Environment, environmental legislations and conservation of biodiversity

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge level
CO1	Create an awareness about the Environment	K1
CO2	Get the idea on Environment conservation and management.	K2
CO3	Execute the pollution free environment and value of natural resources	K3
CO4	Evaluate the value of environment and social issues	K4
CO5	Acquire knowledge about biodiversity, human population and environment	K5

### Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	M	L	H	M	M	M	M	H	H
CO2	M	M	H	M	L	M	M	H	M
CO3	H	L	M	L	M	L	H	H	H
CO4	H	M	H	M	L	M	M	M	M
CO5	M	M	M	L	L	L	M	H	H

H-High; M-Medium;L-Low;

<b>Programme Code:</b>	B.Sc.,		<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY304		<b>Title</b>	<b>Batch:</b>	2022 – 2025
			<b>Core III - Cell Biology</b>	<b>Semester:</b>	III
<b>Lecture Hrs./Week</b>	6	<b>Tutorial Hrs./Sem.</b>	--	<b>Credits:</b>	5

#### Course Objectives

To study the basic concepts, principles, techniques and recent development of cell biology

#### Course Outcomes

On the successful completion of the course, students will be able to

<b>CO Number</b>	<b>CO Statement</b>	<b>Knowledge Level</b>
CO1	Remember the structural and functional aspects of basic units of life	K1
CO2	Understand the overview of cells and organs that control biological system	K2
CO3	Apply the knowledge of origin, development and differentiation of different cells.	K3
CO4	Analyse the structure and functions of cell organelles.	K4
CO5	Evaluate the cell constituents and their biological activities.	K5

#### Mapping

<b>PO /PSO /CO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PSO1</b>	<b>PSO2</b>
<b>CO1</b>	M	H	L	M	H	M	H	H	H
<b>CO2</b>	M	H	M	L	M	L	H	M	H
<b>CO3</b>	M	M	M	M	H	M	M	H	M
<b>CO4</b>	M	H	M	M	H	M	H	M	H
<b>CO5</b>	H	M	M	L	M	H	M	M	M

H-High; M-Medium;L-Low;

<b>Programme Code:</b>	B.Sc.,			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY406			<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Practical Hrs./Week</b>	3	<b>Tutorial Hrs./Sem.</b>	10	<b>Core Lab – II</b> Cell Biology and Genetics ( Non Semester Pattern)	<b>Semester:</b>	III & IV
					<b>Credits:</b>	4

### Course Objectives

To be able to perform experiments using the common tools of cell biology and the basic concepts in genetics.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember the concepts of genetics through experiments.	K1
CO2	Understand the practical experience in instrument handling	K2
CO3	Apply the laboratory test outcomes and determine the validity of the test results obtained.	K3
CO4	Analyse the different stages of cell divisions and genetic disorders in human	K4
CO5	Evaluate the role of chromosomes in sex determination and inheritance of X and Y linked genes	K5

### Mapping

PO / PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO									
CO1	M	H	M	M	M	H	H	M	H
CO2	H	H	M	M	H	L	M	M	M
CO3	H	M	L	H	M	M	H	H	M
CO4	M	H	M	H	H	M	H	M	H
CO5	H	H	M	M	M	M	H	M	M

H-High; M-Medium;L-Low;

<b>Programme Code:</b>	B.Sc.,			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY 3N1			<b>Title</b>	<b>Batch:</b>	2022 – 2025
				<b>Non major Elective –I Public Health and Hygiene</b>	<b>Semester:</b>	III
<b>Lecture Hrs./Week</b>	1	<b>Tutorial Hrs./Sem.</b>	--	<b>Credits:</b>	2	

### Course Objectives

To study the importance of health and hygiene for the society and keep in mind the maintenance of our body

### Course Outcomes

On the successful completion of the course, students will be able to

Number	CO Statement	Knowledge Level
CO1	Remember the Health awareness and Hygiene	K1
CO2	Understand the reasons for the diseases	K2
CO3	Implement the nutrient requirements for day today life	K3
CO4	Discuss the importance of nutrition and its classification	K4
CO5	Acquire the knowledge of deficiency diseases of protein , lipids and vitamins and Health programming	K5

### Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	M	M	M	M	M	M	H	M	H
CO2	M	H	L	L	M	L	H	H	M
CO3	L	M	H	L	L	M	M	M	M
CO4	M	M	M	M	M	L	L	M	M
CO5	L	H	L	L	L	M	M	H	M

H-High; M-Medium;L-Low;

<b>Programme Code:</b>	B.Sc.,			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY 3N2			<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs./Week</b>	1	<b>Tutorial Hrs./Sem.</b>	--	<b>Non major Elective –I</b> Practical skill in Human Health	<b>Semester:</b>	III
					<b>Credits:</b>	2

### Course Objectives

To study the importance of health keep in mind the maintenance of our body

### Course Outcomes

On the successful completion of the course, students will be able to

<b>CO Number</b>	<b>CO Statement</b>	<b>Knowledge Level</b>
CO1	Remember the importance of laboratory test	K3
CO2	Understand the normal level of various human physiological parameters	K4
CO3	Apply the instruments used in biological experiment.	K5
CO4	Analyse the bleeding and clotting time of blood in individuals	K4
CO5	Evaluate the Knowledge of Blood grouping	K5

### Mapping

<b>PO /PSO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PSO1</b>	<b>PSO2</b>
<b>CO1</b>	M	L	L	L	H	M	H	H	H
<b>CO2</b>	H	M	M	L	M	H	H	H	M
<b>CO3</b>	M	M	M	M	H	M	H	M	H
<b>CO4</b>	M	M	M	H	H	H	H	H	H
<b>CO5</b>	M	M	M	M	H	M	H	H	H

H-High; M-Medium;L-Low;

<b>Programme Code:</b>	B.Sc.,			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY405			<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs./Week</b>	6	<b>Tutorial Hrs./Sem.</b>	6	<b>Core – IV Genetics</b>	<b>Semester:</b>	IV
					<b>Credits:</b>	5

### Course Objectives

To Study the basic concepts of hereditary, genetic disorders, cancer and all applied aspects of genetics

### Course Outcomes

On the successful completion of the course, students will be able to

CO Numbers	CO Statement	Knowledge level
CO1	Keep in mind the Mendals experiments and chromosomes	K1
CO2	Understand the chemical basis of heredity	K2
CO3	Deploy the heritable traits in families and populations	K3
CO4	Sort of genetic concepts including health and disorders of human	K4
CO5	Construct personal and family pedigrees and integrate genetic testing options in genetic counselling practices	K5

### Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	M	H	M	M	M	M	H	H	H
CO2	M	H	M	M	M	L	M	M	M
CO3	H	M	L	M	M	M	H	M	H
CO4	H	H	M	H	H	L	M	H	M
CO5	H	H	L	H	H	M	H	M	M

H-High; M-Medium;L-Low;

<b>Programme Code:</b>	B.Sc.,		<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22 UZY 4N3		<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs./Week</b>	1	<b>Tutorial Hrs./Sem.</b>	--	<b>Semester:</b>	IV
				<b>Credits:</b>	2
			<b>Non- Major Elective -II</b> Food and Nutrition		

### Course Objective

To acquire knowledge on the nutritive values of various food stuffs, importance of food chart, food borne diseases, adulterations and about food laws.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Recollect the concept of nutritive values of food.	K1
CO2	Understand the energy values of various food stuffs.	K2
CO3	Apply the importance of food chart.	K3
CO4	Analyze the food deficiency diseases	K4
CO5	Get the knowledge about importance of diet.	K5

### Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	L	M	--	--	M	M	M	M	H
CO2	--	--	--	L	L	L	M	H	M
CO3	--	--	--	L	--	M	M	M	L
CO4	L	L	M	M	--	M	L	M	M
CO5	--	--	--	L	--	L	M	H	M

H-High; M-Medium;L-Low;



<b>Programme code:</b>	B. Sc			<b>Programme Title :</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY4N4			<b>Title</b>	<b>Batch :</b>	2022 – 2025
<b>Lecture Hrs/Week</b>	1	<b>Tutorial Hrs/ Sem</b>	--	<b>Non- Major Elective -I</b>	<b>Semester:</b>	III
				Ornamental Fish Culture	<b>Credits:</b>	2

### Course Objectives

Student will learn the importance of ornamental fish culture, maintain an aquarium, know the common ornamental fishes and explore the self employment opportunities.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Numbers	CO Statement	Knowledge level
CO1	Remember the knowledge of Common ornamental fishes	K1
CO2	Demonstrate the aquarium construction, Nutritional requirement of ornamental fish	K2
CO3	Apply the ornamental fish culture methods and breeding techniques of aquarium fishes	K3
CO4	Analyze the fish feed formulation, fish diseases and control measures of ornamental fishes	K4
CO5	Evaluate the transgenic technology in ornamental fishes	K5

### Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	H	M	L	L	L	M	H	H	M
CO2	M	L	M	M	M	L	H	H	H
CO3	M	L	L	M	M	M	H	M	M
CO4	H	M	M	L	L	H	H	H	L
CO5	L	M	L	L	L	L	H	L	M

H-High; M-Medium;L-Low;

<b>Programme Code:</b>	B.Sc.,			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY507			<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs./Week</b>	5	<b>Tutorial Hrs./Sem.</b>	--	<b>Core– V</b> Developmental Biology	<b>Semester:</b>	V
					<b>Credits:</b>	4

### Course Objectives

To understand the basic concepts, landmark events, applications and advances in modern developmental biology.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember the steps and advancements in the developmental biology	K1
CO2	Comprehend embryonic formation and developmental stages with suitable example	K2
CO3	Apply functional knowledge on developmental biology into the frontier sciences	K3
CO4	Sort of embryonic development and its functional applications	K4
CO5	Study about the organogenesis	K5

### Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	H	H	M	L	M	M	M	H	M
CO2	M	H	M	M	M	M	M	M	L
CO3	H	M	M	M	H	M	H	H	H
CO4	M	H	L	L	M	L	H	M	M
CO5	H	M	M	M	M	M	M	H	H

H-High; M-Medium;L-Low;

<b>Programme code:</b>	B. Sc.,		<b>Programme Title :</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY508		<b>Title:</b>	<b>Batch :</b>	2022 – 2025
			<b>Core – VI</b> Biotechnology (skill enhanced course)	<b>Semester</b>	V
<b>Lecture Hrs/Week</b>	5	Tutorial Hrs/Sem	--	<b>Credits:</b>	4

#### Course objectives

Recognize the foundation, techniques, applications of Biotechnology

#### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge level
CO1	Impart the knowledge of principles and practices in biotechnology.	K1
CO2	Understanding the various tools and technique used in biotechnology	K2
CO3	Apply the various technologies on genetically modified organisms .	K3
CO4	Assorted the different culture method and instrument used in biotechnology	K4
CO5	Evaluate the clonal propagation of animal in commercial scale	K5

#### Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	M	H	M	H	H	L	H	H	H
CO2	L	H	M	H	M	L	H	M	M
CO3	L	H	L	H	H	M	H	H	H
CO4	M	M	M	H	M	L	H	M	H
CO5	L	H	L	H	L	M	H	H	M

H-High; M-Medium;L-Low;

<b>Programme Code:</b>	B.Sc.,		<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY509		<b>Title</b>	<b>Batch:</b>	2022 – 2025
			<b>Core - VII</b> BioStatistics and BioPhysics	<b>Semester</b> :	V
<b>Lecture Hrs./Week</b>	5	<b>Tutorial Hrs./Sem.</b>	5	<b>Credits:</b>	4

### Course Objective

The basic knowledge about Biostatistics, Biophysics and basic principles of instruments

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember the concepts of biostatistics and biophysics	K1
CO2	Understand the formula and principles used in biology	K2
CO3	Apply the knowledge of Biostat and Biophysics	K3
CO4	Analyze the importance about instruments in biological laboratory	K4
CO5	Evaluate the different data used in biological samples	K5

### Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	M	H	M	M	H	L	H	M	M
CO2	L	M	H	L	M	H	H	M	H
CO3	M	M	M	M	M	M	M	H	M
CO4	M	H	H	M	H	M	H	M	H
CO5	M	M	M	M	M	M	H	M	M

H-High; M-Medium;L-Low;

<b>Course Code:</b>	22UZY510			<b>Title</b>	<b>Batch:</b>	2022 – 2025
				<b>Core - VIII Biochemistry</b>	<b>Semester:</b>	V
<b>Lecture Hrs./Week</b>	5	<b>Tutorial Hrs./Sem.</b>	--		<b>Credits:</b>	4

### Course Objective

To understand the structure of biomolecules with emphasis on the techniques used for structure determination and aims to enlighten the students how structural information can be utilized for better understanding of biological processes and adaptation of animals physiologically to environmental challenges

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember basic principles of biochemistry, structure of chemical bonds and their significance in biological system	K1
CO2	Understand the structure and function of carbohydrates, their metabolism and regulatory mechanisms.	K2
CO3	Analyse the role of lipids and fatty acids in various regulatory mechanisms and their metabolism and regulation.	K3
CO4	Apply the knowledge how proteins, enzymes and vitamins influence the biological processes and their architecture.	K4
CO5	Integrate the knowledge of vitamins and enzymes in various industries and interpret the mechanism of action of various drugs and their catalytic properties.	K5

### Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	M	H	--	M	L		M	M	M
CO2	--	M	--	M	--	--	L	M	M
CO3	--	M	--	M	--	--	L	M	M
CO4	L	H	M	H	L	--	M	H	M
CO5	--	M	--	M	--	--	H	M	H

H-High; M-Medium;L-Low;

<b>Programme Code:</b>	B.Sc.,			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY5E1			<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs./Week</b>	4	<b>Tutorial Hrs./Sem.</b>	--	<b>Core Elective Paper - I</b> Medical Laboratory Techniques	<b>Semester:</b>	V
					<b>Credits:</b>	4

### Course Objective

To understand the basic principles and applications of MLT.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember the structure and function of medical laboratory instruments and sample diagnostic methods	K1
CO2	Understand the methods used in medical laboratory	K2
CO3	Apply the knowledge about laboratory diagnosis and reasons for the diseases	K3
CO4	Analyze and estimation of CSF, urine, faeces, sputum and semen	K4
CO5	Acquire the knowledge about laboratory techniques	K5

### Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	H	H	L	L	H	H	M	M	H
CO2	M	M	L	L	M	H	M	M	H
CO3	H	M	M	M	M	H	H	M	H
CO4	M	M	M	M	M	M	M	M	H
CO5	H	M	M	M	M	M	H	M	H

H-High; M-Medium; L-Low;

<b>Programme Code:</b>	B.Sc.			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY5E2			<b>Title</b>	<b>Batch:</b>	2022 – 2025
				<b>Core Elective Paper - I</b>	<b>Semester:</b>	V
<b>Lecture Hrs./Week</b>	4	<b>Tutorial Hrs./Sem.</b>	--	Poultry Science and Management Technology	<b>Credits:</b>	4

### Course Objective

To gain the Knowledge about the basic concept of poultry science, construction of poultry farm, knowledge about different breeders, the diseases of poultry birds, the nutritive value of egg

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Keep in mind the role of poultry science	K1
CO2	Understand the concepts of poultry house and management.	K2
CO3	Execute knowledge of poultry science and management	K3
CO4	Evaluate the nutritive value of poultry meat and egg.	K4
CO5	Analyze the appropriate of livestock transport and marketing.	K4

### Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	H	M	M	L	H	H	M	H	M
CO2	M	M	M	L	M	H	M	H	M
CO3	H	H	H	M	M	H	H	H	H
CO4	M	M	M	M	M	M	M	M	M
CO5	H	H	H	M	M	M	H	M	H

<b>Programme Code:</b>	B.Sc.,			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY5E3			<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs./Week</b>	4	<b>Tutorial Hrs./Sem.</b>	--	<b>Core Elective Paper – I</b> Haematology and Clinical pathology	<b>Semester:</b>	V
					<b>Credits:</b>	4

### Course Objective

To understand the methods of blood analysis and laboratory diagnostics in clinical pathology.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember the methods of blood analysis and disease diagnostics	K1
CO2	Understand the methods used in blood cells count and blood chemistry	K2
CO3	Apply knowledge about laboratory diagnosis	K3
CO4	Analyze and blood samples and organs diagnostics methods	K4
CO5	Acquire the knowledge about laboratory techniques	K5

### Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
<b>CO1</b>	H	M	M	L	H	H	M	M	H
<b>CO2</b>	M	M	M	L	M	H	M	M	H
<b>CO3</b>	H	H	H	M	M	H	H	M	H
<b>CO4</b>	M	M	M	M	M	M	M	M	H
<b>CO5</b>	H	H	H	M	M	M	H	M	H



<b>Programme Code:</b>	B.Sc.			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY614			<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Practical Hrs./Week</b>	2	<b>Tutorial Hrs./Sem.</b>	10	<b>Core Lab- III:</b> Developmental Biology, Animal Physiology & Endocrinology, Biostatistics & Biophysics, Biochemistry, Polutry science managment , Heamatology and Clinical pathology & MLT (Non-Semester Pattern)	<b>Semester:</b>	V & VI
					<b>Credits:</b>	4

### Course Objective

To gain the practical knowledge on Zoology, importance of blood cell count, estimate the glucose and haemoglobin in blood samples and structure of embryo of various animals.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Recollect the importance of laboratory test	K3
CO2	Understand the normal level of various human physiological parameters	K4
CO3	Apply the instruments used in biological experiment.	K5
CO4	Understand the structure and functions of endocrine glands.	K4
CO5	Know about the importance of blood cell count.	K5

### Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	M	L	L	L	H	M	H	H	H
CO2	H	M	M	L	M	H	H	H	M
CO3	M	M	M	M	H	M	H	M	H
CO4	M	M	M	H	H	H	H	H	H
CO5	M	M	M	M	H	M	H	H	H

<b>Programme Code:</b>	B.Sc.,		<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY615		<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Practical Hrs./Week</b>	2	<b>Tutorial Hrs./Sem.</b>	<b>Core Lab- IV:</b> Ecology, Evolution, Biotechnology, Microbiology , Sericulture, Insect Pest Management, Parasitology and Aquaculture, Dairy farming and Management Technology, Wildlife Conservation (Non-Semester Pattern)	<b>Semester:</b>	V & VI
		--		<b>Credits:</b>	4

### Course Objective

To obtain practical knowledge in ecology, evolution, biotechnology, microbiology by doing experiments on physico-chemical characters of environment and also uptaining the real time visualising the appliances used in sericulture and aquaculture

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Apply the knowledge on Ecology, Evolution concepts in real time experiments	K3
CO2	Analyse the different water quality parameters, microbial culture and morphometric measurement of fish.	K4
CO3	Understand the techniques and the same in Biotechnology and Microbiology experiments	K5
CO4	Analyse the real time problems in Sericulture and Aquaculture	K4
CO5	Understand the environment quality and critically evaluate and solve	K6

### Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	M	--	H	H	L	M	H	H	M
CO2	--	--	M	M	--	M	H	M	M
CO3	L	L	M	H	--	M	M	M	L
CO4	L	--	M	--	--	H	M	M	M
CO5	--	--	M	M	--	H	H	H	M

<b>Programme Code:</b>	B.Sc.,			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY5AL			<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs./Week</b>	--	<b>Tutorial Hrs./Sem.</b>	--	<b>Advanced Learner Course -1</b> Bioinformatics	<b>Semester:</b>	V
					<b>Credits:</b>	5*

**Course Objective**

To study about the basic bioinformatics and its tools

**Course Outcomes**

On the successful completion of the course, students will be able to

<b>CO Number</b>	<b>CO Statement</b>	<b>Knowledge Level</b>
CO1	Keep in mind the basic bioinformatic tools and Techniques	K1
CO2	Comprehend the genomic study and sequence analysis	K2
CO3	Apply the bioinformatic knowledge of different technique	K3
CO4	Sort the core principles of Bioinformatics	K4
CO5	Acquire the knowledge about the basic bioinformatic	K5

**Mapping**

<b>PO /PSO</b> <b>CO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PSO1</b>	<b>PSO2</b>
<b>CO1</b>	H	H	M	H	H	M	M	M	H
<b>CO2</b>	H	M	L	M	M	L	H	H	M
<b>CO3</b>	M	H	M	H	H	M	H	M	H
<b>CO4</b>	H	M	L	M	M	L	M	H	M
<b>CO5</b>	M	H	L	H	H	M	H	M	H

<b>Programme Code:</b>	B.Sc.		<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY 5VA		<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture hrs./Week</b>		<b>Tutorial Hrs./Sem.</b>	-	<b>Value Added Course:</b>	<b>Semester:</b>
				Animal Behaviour	V
					<b>Grade</b>
					2*

### Course Objective

To understand the importance of animal behaviour

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember the behaviours of animals	K1
CO2	Understand the ability to communicate with animals	K2
CO3	Apply the knowledge of key concepts in animal behavior	K3
CO4	Analyse the individual, social and reproductive behaviour of animals	K4
CO5	Evaluate the behaviour patterns of animals	K5

### Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	H	M	M	M	M	H	H	M	M
CO2	H	H	L	L	M	H	H	M	M
CO3	H	M	L	M	L	M	H	M	H
CO4	H	L	M	L	M	H	H	L	H
CO5	H	M	L	L	L	M	H	M	M

<b>Programme Code:</b>	B.Sc.			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY5S1			<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs./Week</b>	1	<b>Tutorial Hrs./Sem.</b>	--	<b>Skill Based Elective- I</b> Network and Information Security (SBE-Online)	<b>Semester:</b>	V
					<b>Credits:</b>	2

### Course Objective

To acquire knowledge on Network security, network monitoring, password management, Wi-Fi security and hackers.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember the basic concepts of network	K1
CO2	Understand the network hacking techniques	K2
CO3	Deploy information and network security	K3
CO4	Interpret the common threats today in computer network	K4
CO5	Importance of right password usage	K5

### Mapping

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	--	--	--	--	--	--	M	L	M
CO2	--	--	--	--	--	--	M	L	M
CO3	--	--	--	--	--	--	M	M	M
CO4	--	--	--	--	--	--	M	L	L
CO5	--	--	--	--	--	--	M	M	M

<b>Programme code:</b>	B. Sc.,			<b>Programme Title :</b>	Zoology	
<b>Course Code:</b>	22UZY5S2			<b>Title</b>	<b>Batch :</b>	2022 – 2025
<b>Lecture Hrs/Week</b>	1	Tutorial hours/Sem	--	<b>Skill Based Elective- I</b>	<b>Semester</b>	IV
				Apiculture (SBE)	<b>Credits:</b>	2

### Course Objectives

Understanding the biology, rearing and management of honeybees and study the interaction of bees with plants.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember the steps involved in modern bee keeping techniques and its practical Difficulties	K1
CO2	Comprehend methodologies involved in bee keeping	K2
CO3	Apply modern tools in bee keeping and value added product preparation	K3
CO4	Validate different bee keeping techniques	K4
CO5	Acquire the knowledge about byproducts of honey bee	K5

### Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	H	M	M	M	M	H	H	M	H
CO2	H	H	L	L	M	H	H	M	M
CO3	H	M	L	M	L	M	H	M	H
CO4	H	L	M	L	M	H	H	L	H
CO5	H	M	L	L	L	M	H	M	H

<b>Programme Code:</b>	B.Sc.,			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY611			<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs./Week or Practical Hrs./Week</b>	5	<b>Tutorial Hrs./Sem.</b>	--	<b>Core-IX</b> Animal Physiology & Endocrinology	<b>Semester:</b>	VI
					<b>Credits:</b>	4

#### Course Objective

To the complete understanding of all the animals physiological and chemical process associated with living cell in the animal kingdom

#### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember the physical, physiological structure and bio chemical activities at cellular Level	K1
CO2	Understand the comprehend physiological activity of organ system and bio chemical activity of cells	K2
CO3	Apply the functional knowledge on various organs and endocrine glands	K3
CO4	Correlate the physiological activities with the anatomical structure and apply the recent techniques to study the same	K4
CO5	Evaluate the role of physiology and endocrinology in environmental knowledge	K5

#### Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	M	H	-	-	M	--	M	M	H
CO2	H	H				M	L	H	M
CO3	--	M	--	--	L	M	--	M	M
CO4	--	M	--	--	L	--	L	H	M
CO5	--	L	M	--	--	--	M	M	M

<b>Programme Code:</b>	B.Sc.,		<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY612		<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs./Week or Practical Hrs./Week</b>	5	<b>Tutorial Hrs./Sem.</b>	<b>Core-X Ecology and Evolution</b>	<b>Semester:</b>	VI
				<b>Credits:</b>	4

### Course Objective

To know about the basic concepts of Ecology, origin of life, animal population animal relationships and Evolution.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Recollect the importance of abiotic factors and origin of life	K1
CO2	Understand the basic concepts of animal relationship and fossils	K2
CO3	Apply knowledge about animal ethics and evidences of evolution	K3
CO4	Analyze the animal population and organic evolution of man	K4
CO5	Gain the knowledge about biogeochemical cycles.	K5

### Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	H	H	H	M	H	L	M	H	H
CO2	M	H	H	M	M	H	L	M	H
CO3	M	H	H	L	M	H	H	M	H
CO4	H	H	H	L	M	H	M	H	H
CO5	M	H	H	H	M	M	L	H	H



<b>Programme Code:</b>	B.Sc.,			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY613			<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs./Week</b>	5	<b>Tutorial Hrs./Sem.</b>	--	<b>Core XI - Microbiology and Immunology-Skill enhancement course</b>	<b>Semester:</b>	VI
					<b>Credits:</b>	4

### Course Objective

To acquire a basic knowledge of microbiology and immunology, working mechanism of immunity, basic methods in microbiology, classification of microorganisms and Immunity and applications of microbiology and immunology

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Keep in mind the scope of microbiology and immunology	K1
CO2	Understand the classification of microorganisms and immunity	K2
CO3	Apply the knowledge about applied microbiology and Immunology	K3
CO4	Analyse the types of Immunity involved in our body against pathogen	K4
CO5	Acquire the knowledge of microorganisms and immunity	K5

### Mapping

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	H	M	H	H	M	H	H	H	H
CO2	H	M	H	H	M	H	H	H	M
CO3	M	H	H	H	M	H	H	H	H
CO4	M	H	H	H	M	H	H	M	H
CO5	H	M	H	H	M	H	H	M	H

<b>Programme Code:</b>	B.Sc.,			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY6E4			<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs./Week</b>	4	<b>Tutorial Hrs./Sem.</b>	--	<b>Core Elective Paper - II</b> Sericulture	<b>Semester:</b>	VI
					<b>Credits:</b>	4

### Course Objectives

To acquire knowledge in CSB, moriculture, silkworm rearing and reeling techniques.

### Course Outcomes

On the successful completion of the course, students will be able to

<b>CO Number</b>	<b>CO Statement</b>	<b>Knowledge Level</b>
CO1	Remember the historical background and importance of Sericulture	K1
CO2	Get the idea for increasing cocoon productivity and to prevent silkworm diseases	K2
CO3	Execute the construction of rearing house and self employment in silkworm rearing	K3
CO4	Analyze this course for employment and job opportunities in the public, private and Govt.sectors	K4
CO5	To Assess the Knowledge of moriculture and sericulture.	K5

### Mapping

<b>PO /PSO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PSO1</b>	<b>PSO2</b>
<b>CO1</b>	M	L	M	M	M	M	H	M	M
<b>CO2</b>	H	H	L	M	M	H	M	M	M
<b>CO3</b>	M	L	M	L	H	M	H	H	H
<b>CO4</b>	M	M	L	M	M	H	H	M	H
<b>CO5</b>	M	L	L	L	M	H	M	L	L

<b>Programme Code:</b>	B.Sc.,		<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY6E5		<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs./Week</b>	4	<b>Tutorial Hrs./Sem.</b>	--	<b>Core Elective Paper- II</b> Insect Pest Management	<b>Semester:</b> VI
				<b>Credits:</b>	4

### Course Objectives

To study the agricultural insects, pesticides, pest control management and Integrated Pest Management

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember agricultural pest and their management	K1
CO2	Understand the control of pest management	K2
CO3	Apply modern methods in agricultural field	K3
CO4	Interpret application of pesticide	K4
CO5	Acquire the knowledge about different types of pests	K5

### Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	M	L	M	L	M	H	H	M	M
CO2	H	L	H	M	M	H	M	M	M
CO3	M	M	L	L	H	M	H	H	H
CO4	H	L	M	M	M	H	H	M	H
CO5	M	M	L	L	M	H	M	M	L

<b>Programme Code:</b>	B.Sc.,			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY6E6			<b>Title</b>	<b>Batch:</b>	2022 – 2025
				<b>Core Elective - II</b> Parasitology	<b>Semester:</b>	VI
<b>Lecture Hrs./Week</b>	4	<b>Tutorial Hrs./Sem</b>	-		<b>Credits:</b>	4

### Course Objectives

To study about the different parasites and diseases in human.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand the diversity of parasites	K1
CO2	Comprehend the parasite-host relationship	K2
CO3	Apply Medical Importance of parasites	K3
CO4	Analyse the Life cycle of parasites	K4
CO5	Recollect the knowledge on parasitic diseases in human	K5

### Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	L	L	L	M	L	M	H	L	H
CO2	L	M	L	L	M	L	M	M	H
CO3	M	M	M	M	M	M	H	L	M
CO4	L	M	L	L	M	L	M	M	H
CO5	M	L	M	M	L	M	H	L	M

<b>Programme code:</b>	B.Sc		<b>Programme Title :</b>	Zoology	
<b>Course Code:</b>	22UZY6E7		<b>Title:</b>	<b>Batch :</b>	2022 – 2025
			<b>Core Elective Paper–III</b> Aquaculture	<b>Semester:</b>	VI
<b>Lecture Hrs/Week:</b>	5	Tutorial hours	---	<b>Credits:</b>	4

#### Course Objectives

The student learns the methods of culturing economically viable fish, prawn, oyster and clam farming. Best practices adopted in aquaculture, fish diseases and methods of their control.

#### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Keep in mind the environmental assessment strategies and management system in aquaculture.	K1
CO2	To Acquire the knowledge on culture of aquatic animals.	K2
CO3	To Apply the knowledge in different fishing strategies of aquaculture	K3
CO4	To Analyze the enrichment of live food and nutritional requirements of aquatic organisms	K4
CO5	To Evaluate the various technique involved in aquaculture	K5

#### Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	M	H	M	L	M	M	H	M	H
CO2	M	H	L	M	M	H	H	M	H
CO3	M	M	H	L	M	M	H	M	M
CO4	H	H	M	M	L	M	H	L	H
CO5	M	H	M	L	M	L	H	M	H

<b>Programme Code:</b>	B.Sc.,		<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY6E8		<b>Title:</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs./Week</b>	5	<b>Tutorial Hrs./Sem.</b>	--	<b>Semester:</b>	VI
				<b>Credits:</b>	4
					Core Elective Paper – III Wildlife Conservation

#### Course Objective

To acquire knowledge on forest types, biodiversity, wild life conservation and techniques deployed for conservation.

#### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember the importance of forest, wildlife conservation and its management techniques	K1
CO2	Understand the methods used in wildlife census	K2
CO3	Apply knowledge about conservation on Indian wildlife	K3
CO4	Analyze and estimate different animal population	K4
CO5	Acquire the knowledge about priorities in wildlife conservation	K5

#### Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	M	L	H	L	M	--	M	H	M
CO2	L	--	H	--	M	L	M	M	M
CO3	--	--	H	--	L	--	H	H	M
CO4	--	--	H	--	M	L	M	M	L
CO5	--	--	H	--	L	L	M	H	M

<b>Programme code:</b>	B. Sc.,	<b>Programme Title :</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY 6E9	<b>Title:</b>	<b>Batch :</b>	2022 – 2025
		<b>Core Elective Paper–III</b> Dairy Farming and Management Technology	<b>Semester:</b>	VI
<b>Hrs/Week:</b>	5		<b>Credits:</b>	4

#### Course Objectives

To provide recent knowledge of dairy farming, animal management and production

#### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember knowledge of dairy farming and milk product	K1
CO2	Deduce the Breeding practices in dairy farm	K2
CO3	Apply the knowledge in Production of condensed and dried milks	K3
CO4	Sort of the Food safety and quality assurance.	K4
CO5	To Assess the knowledge of dirty Product	K5

#### Mapping

CO \ PO/PSO	PO							PSO	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
<b>CO1</b>	M	M	M	L	M	M	H	H	H
<b>CO2</b>	M	L	L	L	L	H	H	M	M
<b>CO3</b>	H	M	M	M	M	M	H	H	H
<b>CO4</b>	M	L	L	L	H	L	H	M	H
<b>CO5</b>	M	M	L	M	M	M	H	M	M

<b>Programme code:</b>	B. Sc.,	<b>Programme Title :</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY 616	<b>Title:</b>	<b>Batch :</b>	2022 – 2025
		<b>Project</b>	<b>Semester:</b>	VI
<b>Hrs/Week:</b>			<b>Credits:</b>	2

### **Group Project and Viva Voce**

Each faculty will be allotted 5 students. A specific problem will be assigned to the students. The topic/area of work will be finalized at the end of IV semester, allowing scope for the students to gather relevant literature during the vacation. The research work will be carried out based on the objective of the project and viva voce/presentation will be conducted by a panel comprising of HOD, internal examiners. A power point presentation by the student group will be evaluated on the basis of students' response to the questions.

#### **Area of Work**

Limnology, Pollution studies, Clinical studies, Molecular Biology, Fish Toxicology, Microbiology, Entomology, Environmental Science, Biotechnology, Bioinformatics, Cancer Biology.

#### **Methodology**

Each project should contain the following details:

- Brief introduction on the topic
- Review of Literature
- Materials and Methods
- Results and Discussions – evidences in the form of figures, tables and photographs
- Conclusion / Summary
- Bibliography

The above contents should not exceed 50 pages



<b>Programme Code:</b>	B.Sc.,			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY6AL			<b>Title:</b>	<b>Batch:</b>	2022 – 2025
				<b>Advanced Learner Course- Zoology for Competitive Exams</b>	<b>Semester:</b>	VI
<b>Lecture Hrs./Week</b>	-	<b>Tutorial Hrs./Sem.</b>	--		<b>Credits:</b>	5*

### Course Objective

To acquire the comprehensive knowledge of zoology to achieve the competitive examinations .

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember the basic concepts of emerging fields of zoology	K1
CO2	Understand the Knowledge about different fields of zoology	K2
CO3	Analyse the principles and concepts of zoology	K3
CO4	Deploy the zoology knowledge to competitive examinations	K4
CO5	Assess the various methods and tools to remember the zoology topics	K5

### Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	M	L	M	L	H	H	M	M	H
CO2	M	M	L	L	M	H	M	M	H
CO3	L	M	M	M	M	H	H	M	H
CO4	M	M	M	M	M	M	M	M	H
CO5	M	M	M	M	M	M	H	M	H

<b>Programme Code:</b>	B.Sc.			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY 6VA			<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture hrs./Week</b>	/	<b>Tutorial Hrs./Sem.</b>	-	<b>Value Added Course:</b> Basic concepts in Human psychology Personality Development	<b>Semester:</b>	VI
					<b>Grade:</b>	

### Course Objective

To understand the importance of personality development

### Course Outcomes

On the successful completion of the course, students will be able to maintain some characteristics of personality and know about the social behaviour.

CO Number	CO Statement	Knowledge Level
CO1	Remember the role of personality	K1
CO2	Understand the human stages of lifecycle	K2
CO3	Deploy the role of Family, culture, society and situation	K3
CO4	Analyze the potential of nature of personality	K4
CO5	Acquire the knowledge about various types of personalities	K5

### Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	H	M	M	H	M	M	H	H	M
CO2	H	H	H	H	H	L	M	M	M
CO3	H	L	L	H	L	L	M	M	H
CO4	M	M	L	H	H	H	H	M	H
CO5	H	L	L	M	L	M	M	M	M

<b>Programme Code:</b>	B.Sc.,			<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY6S3			<b>Title</b>	<b>Batch:</b>	2022 – 2025
				<b>Skill Based Elective - II</b> Bio Farming	<b>Semester:</b>	VI
<b>Lecture Hrs./Week</b>	1	<b>Tutorial Hrs./Sem.</b>	--	<b>Credits:</b>	2	

### Course Objective

To understand the importance of vermiculture, external and internal structure of earthworm, nutrient value of vermicompost, preparation methods of vermibed and maketing of vermicompost

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember the role of organisms in Modern Farming	K1
CO2	Construct the concepts and principles of biofarming	K2
CO3	Apply the knowledge of organisms in biofarming	K3
CO4	Analyze the potential of biocompost as an alternative to chemical fertilizers	K4
CO5	Evaluate the knowledge about various type of organisms in biofarming	K5

### Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	H	M	M	H	M	M	H	H	M
CO2	H	H	M	H	M	L	M	M	M
CO3	H	L	L	H	M	L	M	M	H
CO4	M	M	L	H	H	H	H	M	H
CO5	H	M	M	M	L	M	M	M	M



<b>Programme Code:</b>	B.Sc.,		<b>Programme Title:</b>	Bachelor of Zoology	
<b>Course Code:</b>	22UZY6S4		<b>Title</b>	<b>Batch:</b>	2022 – 2025
<b>Lecture Hrs./Week or Practical Hrs./Week</b>	1	<b>Tutorial Hrs./Sem.</b>	Skill Based Elective - II Biopharmaceuticals (SBE)	<b>Semester:</b>	VI
				<b>Credits:</b>	2

### Course Objective

To study the biological systems to understand the actual path of metabolism of drugs and the method of drug discovery, Quality assurance and control such as DNA technology and probiotics.

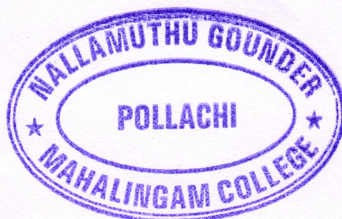
### Course Outcomes


On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Keep in mind the Routes of administration in biological systems and models	K1
CO2	Understand the drug metabolism	K2
CO3	Implement the microbial products in pharmaceutical industry	K3
CO4	Discuss the DNA technology in Pharmaceutical products	K4
CO5	Acquire the knowledge abouta uses of probiotics	K5

### Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	M	M	--	H	--	M	H	H	M
CO2	--	M	--	H	--	--	M	L	M
CO3	--	--	--	H	--	--	M	M	H
CO4	--	--	--	H	--	H	H	M	H
CO5	--	--	--	M	--	M	M	L	M



  
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