Holy Cross College (Autonomous), Nagercoil

Kanyakumari District, Tamil Nadu.

Accredited with A^+ by NAAC - IV cycle – CGPA 3.35

Affiliated to

Manonmaniam Sundaranar University, Tirunelveli

Semester I & II

POs, PSOs & COs

DEPARTMENT OF ZOOLOGY

2023-2026

(With effect from the academic year 2023-2024)

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEOs	**Upon completion of B.A/B.Sc. degree programme, the graduates will be able to**	**Mission addressed**
PEO 1	apply appropriate theory and scientific knowledge to participate in activities that support humanity and economic development nationally and globally, developing as leaders in their fields of expertise.	**M1& M2**
PEO 2	inculcate practical knowledge for developing professional empowerment and entrepreneurship and societal services.	**M2, M3, M4 & M5**
PEO 3	pursue lifelong learning and continuous improvement of the knowledge and skills with the highest professional and ethical standards.	**M3, M4, M5 & M6**

PROGRAMME OUTCOMES (POs)

POs	**Upon completion of B.Sc. Degree Programme, the graduates will be able to:**	**PEOs Addressed**
PO1	obtain comprehensive knowledge and skills to pursue higher studies in the relevant field of science.	PEO 1
PO2	create innovative ideas to enhance entrepreneurial skills for economic independence.	PEO2
PO3	reflect upon green initiatives and take responsible steps to build a sustainable environment.	PEO 2
PO4	enhance leadership qualities, team spirit and communication skills to face challenging competitive examinations for a better developmental career.	PEO 1&PEO 3
PO5	communicate effectively and collaborate successfully with peers to become competent professionals.	PEO 2&PEO 3
PO6	absorb ethical, moral and social values in personal and social life leading to highly cultured and civilized personality	PEO 2& PEO 3
PO7	participate in learning activities throughout life, through self-paced and self-directed learning to develop knowledge and skills.	PEO 1 & PEO 3

PROGRAMME SPECIFIC OUTCOMES (PSOS)

PSO	**Upon completion, B.Sc. Zoology graduates will be able to:**	**PO addressed**
PSO - 1	deep understanding of the key concepts of Zoology in the areas of Taxonomy, Physiology, Cell Biology, Genetics, Applied Zoology, Aquaculture Ecology and Toxicology, Biochemistry, Biophysics, Biostatistics, Biotechnology, Immunology, Microbiology and Evolution.	PO1, PO3
PSO - 2	perform laboratories experiments with suitable techniques at cellular, molecular, biochemical, physiological, and systematic levels.	PO2, PO3
PSO - 3	apply biological methods to formulate hypothesis, collect, analyze, and evaluate the data to address the problem	PO4, PO5

	effectively.	
PSO - 4	plan their career goals and pursue higher studies in different Zoological disciplines and develop entrepreneurship skills by applying the knowledge gained from courses like Aquaculture, Sericulture, Apiculture, Poultry, Vermitechnology and Clinical Laboratory Technology.	PO1, PO4, PO 6
PSO - 5	to identify societal and environmental problems and solve them with innovative ideas and technologies, which can be patented.	PO3, PO6, PO7

MAPPING OF PO'S AND PSO'S

POs	PSO1	PSO2	PSO3	PSO4	PSO5
PO 1	3	3	3	3	3
PO 2	3	3	3	3	3
PO 3	3	3	2	3	3
PO4	2	2	3	2	2
PO5	3	2	3	3	2
PO6	3	2	2	2	3
PO7	3	3	2	2	3
Total	20	18	18	18	19
Average	2.8	2.5	2.5	2.5	2.7

Course Outcome

SEMESTER I
CORE COURSE I: INVERTEBRATA
Course Code : ZU231CC1

COs	On completion of this course, students will;	CL
CO 1	understand the basic concepts of invertebrate animals and recall its structure and functions.	**K1**
CO 2	illustrate and examine the systemic and functional morphology of various groups of invertebrates.	**K2**
CO 3	differentiate and classify the animal's mode of life in various taxa and estimate the biodiversity.	**K3**

K1 - Remember; **K2** - Understand; **K3** – Apply

SEMESTER I
CORE LAB COURSE I: INVERTEBRATA
Course Code: ZU231CP1

On completion of this course, students will be able to:		
CO1	identify and label the external features of different groups of invertebrate animals.	**K1**
CO2	illustrate and examine the circulatory system, nervous system, and reproductive system of invertebrate animals.	**K2**
CO3	differentiate and compare the structure, function, and mode of life of various groups of animals.	**K3**
CO4	to compare and distinguish the dissected internal organs of lower animals.	**K4**
CO5	prepare and develop the mounting procedure of economically important invertebrates.	**K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** – Evaluate

SEMESTER I
ELECTIVE COURSE I- ALLIED ZOOLOGY I
Course Code : ZU231EC1

On the successful completion of the course, student will be able to:		
CO1	relate the characteristic features in invertebrates and chordates.	**K1 & K2**
CO2	classify invertebrates up to class level and chordates up to order level.	**K2 & K4**
CO3	identify the structural and functional organization of few invertebrates and chordates.	**K3 & K4**
CO4	survey the adaptations and habits of animals to their habitat.	**K4 & K5**
CO5	assess the taxonomic position of invertebrate and chordate animals.	**K5 & K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

SEMESTER I

ELECTIVE LAB COURSE - LAB ON ALLIED ZOOLOGY I

Course Code : ZU231EP1

On the successful completion of the course, student will be able to:		
CO1	compare and distinguish the dissected internal organs of animals.	**K1**
CO2	prepare and develop the mounting procedure of important invertebrate and chordate anatomical parts.	**K2**
CO3	identify and label the external features of different groups of invertebrates.	**K3**
CO4	analyze the ecological roles and significance of the organisms within their ecosystems.	**K4**
CO5	evaluate evolutionary relationships and broader biological concepts among the spotted organisms.	**K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyse; **K5** - Evaluate

SEMESTER I

NON-MAJOR ELECTIVE NME I

ORNAMENTAL FISH FARMING & MANAGEMENT

Course Code: ZU231NM1

On the successful completion of the course, student will be able to**:**		
CO1	identify commercially important ornamental fishes, including indigenous and exotic varieties.	**K1**
CO2	explore food and feeding habits in ornamental fishes, including formulated feed and live feed.	**K2**
CO3	gain expertise in the maintenance of aquariums and water quality management.	**K3**

K1 - Remember; **K2** - Understand; **K3** - Apply

SEMESTER I
FOUNDATION COURSE - INTRODUCTION TO ZOOLOGY

Course Code : ZU231FC1

COS	On the successful completion of the course, student will be able to**:**	**Cognitive level**
CO1	describe the basic concepts of taxonomy, organization, structure and role of cell, environmental issues, importance of culturing organisms.	**K1**
CO2	apply classification principles and identify animals, its organ system on the basis of its function, environmental problems, benefits of culturing organisms.	**K2**
CO3	enhance leadership qualities, team spirit, participate in learning activities and communicate effectively among the peer.	**K3**

K1 - Remember; **K2** - Understand; **K3** - Apply

SEMESTER - I
SPECIFIC VALUE-ADDED COURSE
PET KEEPING AND CARE
Course Code: ZU231V01

On completion of this course, students will be able to:		
CO 1	identify legal regulations and guidelines related to pet ownership	K1
CO 2	interpret pet behaviour and communication cues	K2
CO 3	utilize grooming routines and implement basic first aid and emergency care techniques.	K3
CO 4	analyze the impact of legal regulations on animal welfare and responsible pet care.	K3
CO 5	assess living conditions and space availability and the appropriateness of nutrition and feeding plans.	K5
CO 6	design strategies for responsible pet selection based on living conditions and lifestyle	K6

K1 - Remember; **K2** - Understand; **K3** - Apply

SEMESTER II
CORE COURSE II: CHORDATA
Course Code : ZU232CC1

On the successful completion of the course, student will be able to:		
1	recall the name and distinct features of different sub phylum belonging to phylum Chordata.	**K1**
2	explain the structural organization, function and evolutionary aspects of chordates.	**K2**
3	interpret the biological significance and the conservation of chordates.	**K3**

K1 - Remember; **K2** - Understand; **K3** - Apply

SEMESTER II
CORE LAB COURSE: CHORDATA
Course Code : ZU232CP1

On the successful completion of the course, student will be able to:		
1	identify and recall the name and distinct external and internal features of animals belonging to phylum Chordata.	**K1**
2	explain the structural organization of various organs and systems in different classes of vertebrates.	**K2**
3	analyze, compare, and distinguish the morphological features and developmental stages of chordates	**K3**

K1 - Remember; **K2** - Understand; **K3** – Apply

SEMESTER II
ELECTIVE COURSE II: ALLIED ZOOLOGY II
Course Code : ZU232EC1

On the successful completion of the course, student will be able to:		
1.	recall the internal parts and developmental stages, patterns of inheritance and different types of animal behavior.	**K1**
2.	recognize the major functions of organ and immune systems in the human body and their role and analyze the stages of development in frog.	**K2**
3.	correlate the physiological processes of animals and relationship of organs system, inheritance of characters.	**K3**

K1 - Remember; **K2** - Understand; **K3** - Apply

SEMESTER II
ELECTIVE LAB COURSE II: ALLIED ZOOLOGY II
Course Code : ZU232EP1

On the successful completion of the course, student will be able to:		
1.	recognize museum specimens, stages of cleavage, vital organs, genetic diseases of human.	**K1**
2.	explain the economic importance of animals, clinical procedures, dominant and recessive characters of humans.	**K2**
3.	use the skills relevant to basic and applied Zoology for identification and differentiation of animal forms.	**K3**

K1 - Remember; **K2** - Understand; **K3** – Apply

SEMESTER II

NON-MAJOR ELECTIVE NME II
BIOCOMPOSTING FOR ENTREPRENEURSHIP

Course Code : ZU232NM1

On the successful completion of the course, students will be able to:		
1.	define the process of bio composting by earthworms and explain the economic cost of establishing small Biocompost units as a cottage industry.	**K1**
2.	demonstrate composting techniques for various applications like solid waste management, industrial waste recycling using sugarcane bagasse, etc	**K2**
3.	establish a small Biocompost units as a cottage industry.	**K3**

K1- Remember; **K2**- Understand; **K3**- Apply

SEMESTER II
SKILL ENHANCEMENT COURSE SEC-1
ANIMAL BEHAVIOUR
Course Code : ZU232SE1

On the successful completion of the course, students will be able to:		
1.	Gain a comprehensive understanding of the key concepts related to the genetics, evolution, perception, learning, decision making and chronobiology of animal behaviour.	**K1**
2.	explain the evolutionary and ecological factors influencing social behaviour, the complexity of decision-making process in animals and the concepts of biological clocks.	**K2**
3.	interpret animal behaviour patterns, social behaviour dynamics, predict and manage animal physiology and behaviour, solve behavioural problems, optimise human health and well-being.	**K3**

K1- Remember; **K2**- Understand; **K3**- Apply

SEMESTER I & II
Life Skill Training I: Catechism
Course Code: UG232LC1

1.

Course Outcome	Upon completion of this course the students will be able to
CO-1	understand the aim and significance of value education
CO-2	develop individual skills and act confidently in the society
CO-3	learn how to live lovingly through family values
CO-4	enhance spiritual values through strong faith in God
CO-5	learn good behaviours through social values

SEMESTER I & II
Life Skill Training I: Moral
Course Code: UG232LM1

Course Outcome	Upon completion of this course the students will be able to
CO-1	understand the aim and significance of value education
CO-2	develop individual skills and act confidently in the society
CO-3	learn how to live lovingly through family values
CO-4	enhance spiritual values through strong faith in God
CO-5	learn good behaviours through social values