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)

DEPARTMENT OF ZOOLOGY

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

POs	Upon completion of M.A./ M. Sc. /MSW Degree Programme, the graduates will be able to:	Mapping with Mission
PEO1	apply scientific and computational technology to solve socio ecological issues and pursue research.	M1, M2
PEO2	continue to learn and advance their career in industry both in private and public sectors	M4 & M5
PEO3	develop leadership, teamwork, and professional abilities to become a more cultured and civilized person and to tackle the challenges in serving the country.	M2, M5 & M6

PROGRAMME OUTCOMES (POS)

PO	Upon completion of M.Sc. Degree Programme, the graduates will be able to:	Mapping with PEOs
PO1	apply their knowledge, analyze complex problems, think independently, formulate and perform quality research.	**PEO1 & PEO2**
PO2	carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication.	**PEO1, PEO 2 & PEO3**
PO3	develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	**PEO 2**
PO4	develop innovative initiatives to sustain ecofriendly environment	**PEO1, PEO 2**
PO5	pursue active career, team work and using managerial skills guide people to the right destination in a smooth and efficient way.	**PEO 2**
PO6	employ appropriate analysis tools and ICT in a range of learning scenarios, demonstrating the capacity to find, assess, and apply relevant information sources.	**PEO1, PEO 2 & PEO3**
PO7	learn independently for lifelong to execute professional, social and ethical responsibilities promoting sustainable development.	**PEO3**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO	Upon completion of M.Sc. Programme, the graduates will be able to:	PO addressed
PSO1	explain the various aspects of life sciences including Biochemistry, Cell and Molecular Biology, Biosystematics, Genetics, Evolution, Physiology, Developmental Biology, Exobiology, Immunology, Microbiology, Endocrinology, Bioinformatics, Biotechnology and Nanobiology.	PO1, PO2
PSO2	carryout experimental techniques, analyze statistically, draw conclusions, write report, present effectively and publish in indexed journals effectively	PO2, PO4, PO5, PO6
PSO 3	develop personal and key transferable skills and entrepreneurial skills through industrial / field visits and internships.	PO2, PO3
PSO 4	independently assemble facts, summarize and draw conclusions from scientific text and develop competence in the design and execution of research.	PO1, PO2, PO3, PO4, PO6
PSO 5	discriminate societal and environmental problems, adopt relevant technology, synthesis solution and claim for IPR	PO4, PO5, PO7

Mapping of PO'S and PSO's

POs	PSO1	PSO 2	PSO3	PSO4	PSO5
PO1	M	S	M	S	M
PO2	M	S	S	S	S
PO3	S	M	M	S	S
PO4	S	S	S	S	S
PO5	M	S	S	S	S
PO6	S	S	M	S	S
PO7	S	S	S	S	S

***S - Strong; M - Medium; L - Low**

Course Outcomes

SEMESTER I

CORE COURSE I: STRUCTURE AND FUNCTION OF INVERTEBRATES

Course Code : ZP231CC1

On the successful completion of the course, student will be able to:		
CO1	remember the general concepts and major groups in animal classification, origin, struct5re, functions and distribution of life in all its forms.	**K1**
CO2	understand the evolutionary process. All are linked in a sequence of life pattern	**K2**
CO3	apply this for pre-professional work in agriculture and conservation of life forms.	**K3**
CO4	analyze what lies beyond our present knowledge of life process.	**K4**
CO5	evaluate and to create the perfect phylogenetic relationship in classification.	**K5**

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

SEMESTER – I

CORE COURSE II: COMPARATIVE ANATOMY OF VERTEBRATES

Course Code : ZP231CC2

On successful completion of the course, the student will be able to:		
CO1	remember the general concepts and major groups in animal classification, origin, structure, functions, and distribution of life in all its forms.	**K1**
CO2	understand the evolutionary process. All are linked in a sequence of life patterns.	**K2**
CO3	apply this for pre-professional work in agriculture and conservation of life forms.	**K3**
CO4	analyze what lies beyond our present knowledge of life process.	**K4**
CO5	evaluate and to create the perfect phylogenetic relationship in classification.	**K5**

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

SEMESTER I

CORE LAB COURSE I: LAB COURSE IN INVERTEBRATES & VERTEBRATES

Course Code : ZP231CP1

On the successful completion of the course, student will be able to**:**		
CO1	understand the structure and functions of various systems in animals	**K1**
CO2	learn the adaptive features of different groups of animals	**K2**

CO3	learn the mounting techniques	**K3**
CO4	acquire strong knowledge on the animal skeletal system	**K4**

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

SEMESTER I
ELECTIVE COURSE - I
(a) MOLECULES AND THEIR INTERACTION RELEVANT TO BIOLOGY
Course Code : ZP231EC1

On the successful completion of the course, student will be able to:		
CO1	learn the structure, properties, metabolism, and bioenergetics of biomolecules	**K1**
CO2	acquire knowledge on various classes and major types of enzymes, classification, their mechanism of action and regulation	**K2**
CO3	understand the fundamentals of biophysical chemistry and biochemistry, importance, and applications of methods in conforming the structure of biopolymers	**K3**
CO4	comprehend the structural organization of and proteins, carbohydrates, nucleic acids and lipids	**K4**
CO5	familiarize the use of methods for the identification, characterization, and conformation of biopolymer structures	**K5**

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

SEMESTER I
ELECTIVE COURSE - I (b) FORENSIC BIOLOGY
Course Code : ZP231EC2

On the successful completion of the course, student will be able to		
CO1	recall the fundamentals of forensic biology, psychology, and criminal profiling.	**K1**
CO2	outline the use of scientific evidence in a legal context using basic facts, fundamental principles, and functions of forensic science.	**K2**
CO3	apply the knowledge gained on forensic, dermatoglyphic, serological and odonatological techniques to render forensic service during real-time crime scenes.	**K3**
CO4	analyze fingerprints, personal identification evidence, bite marks and pug marks.	**K4**
CO5	evaluate information to find strategies to resolve problems in forensic biology.	**K5**

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

SEMESTER: I

ELECTIVE COURSE - I
(b) WILDLIFE CONSERVATION AND MANAGEMENT
Course Code : ZP231EC3

On the successful completion of the course, student will be able to:		
CO1	develop the ability to use the fundamental principles of wildlife ecology to solve local, regional and national conservation and management issues	**K1**
CO2	develop the ability to work collaboratively on team-based projects	**K2**
CO3	demonstrate proficiency in the writing, speaking, and critical thinking skills neededto become a wildlife technician	**K3**
CO4	gain an appreciation for the modern scope of scientific inquiry in the field of wildlifeconservation management	**K4**
CO5	develop an ability to analyze, present and interpret wildlife conservation managementinformation.	**K5**

SEMESTER I

ELECTIVE COURSE – II a) BIOSTATISTICS
Course Code : ZP231EC4

COs	**Upon completion of this course the students will be able to:**	**CL**
CO1	recall different biological data, methods of collection and analysis of data.	**K1**
CO2	comprehend the design and application of biostatistics relevant to experimental and population studies.	**K2**
CO3	acquire skills to perform various statistical analyses using modern statistical techniques and software.	**K3**
CO4	analyze the data and interpret the results manually or by using software	**K4**
CO5	evaluate on the merits and limitation of practical problems in biological/ health management study as well as to propose and implement appropriate statistical design/ methods of analysis.	**K5**

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

SEMESTER I

ELECTIVE COURSE - II (b) APPLIED ZOOLOGY

Course Code : ZP231EC5

Upon completion of this course the students will be able to:		
CO - 1	apply the knowledge of animal husbandry in economic development.	**K1**
CO - 2	identify the kinds of bees and the methods of bee keeping.	**K2**
CO - 3	rear silkworms, harvest and market the cocoons.	**K3**
CO - 4	apply skills and experience about the management of poultry and Dairy farming.	**K4**
CO - 5	culture of economically important finfish and shell fishes.	**K5**

SEMESTER I

ELECTIVE COURSE - II(c) PEST MANAGEMENT

Course Code : ZP231EC6

CO	**Upon completion of this course the students will be able to:**	
CO - 1	outline the pest groups affecting different agricultural crops and control measures.	**K1**
CO - 2	select correct IPM in cropping systems with traditional and alternative control measures.	**K2**
CO - 3	analyze the impact of pesticides on environment and adopt better agricultural practices.	**K3**
CO - 4	evaluate the control measures adopted for pests of household and stored products.	**K4**

SEMESTER I

ELECTIVE LAB COURSE I

MOLECULES AND THEIR INTERACTION RELEVANT TO BIOLOGY & BIOSTATISTICS

Course Code : ZP231EP1

COs	**Upon completion of this course the students will be able to:**	**KL**
CO1	learn and study of chemical and physical structure of biological macromolecules.	**K1**
CO2	analyze the biomolecules and physicochemical parameters in samples	**K2**
CO3	analyze and interpret the collected data using statistical methods	**K3**
CO4	design biological experiments and evaluate the samples applying appropriate statical methods.	**K4**

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

SEMESTER I

SPECIFIC VALUE ADDED COURSE

BASICS OF EXCEL

Course Code : ZP231V01

COs	On completion of this course, students will be able to	KL
CO 1	recall the components of Excel's interface and basic cell formatting.	K1
CO 2	summarize the significance of relative, absolute, and mixed cell references in formulae.	K2
CO 3	apply data entry techniques and utilize basic calculations and formulas.	K3
CO 4	analyze different chart types to determine their suitability for presenting specific types of data.	K3
CO 5	evaluate the effectiveness of using functions and charts to ensure clarity and effective visualization.	K5
CO 6	design and create various types of charts (bar, column, pie) based on specific data sets.	K6

SEMESTER – I

LIFE SKILL TRAINING – I ETHICS

Course Code : PG23LST1

Course Outcomes	On completion of this course the student will be able to	
CO1	understand deeper insight of the meaning of their existence.	K1
CO2	recognize the philosophy of life and individual qualities	K2
CO3	acquire the skills required for a successful personal and professional life.	K3
CO4	develop as socially responsible citizens.	K4
CO5	create a peaceful, communal community and embrace unity.	**K3**