

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Core Paper 1 ICHTHYOLOGY AND HERPETOLOGY				
Batch 2023-2025	Semester I	Hours / Week 7	Total Hours 105	Credits 5

COURSE OBJECTIVES

1. To understand about the concepts of taxonomy, procedures and classification of Pisces, Amphibians and Reptiles.
2. To acquire knowledge on the economic importance of fishes, amphibians and reptiles
3. To understand important physiological functions in various vertebrate forms.
4. To know about the distribution of tortoises, terrapins, marine turtles and its migration
5. To know about the distinctive features, distribution of crocodiles and breeding biology of Indian crocodiles

COURSE OUTCOMES

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

CO1	To understand concepts of taxonomy, its procedures, classification of pisces and their economic importance
CO2	To understand concepts of taxonomy, its procedures, classification of amphibians and their economic importance
CO3	To understand concepts of taxonomy, its procedures, classification of reptiles and their economic importance
CO4	To attain knowledge about locomotory organs, methods of locomotion, feeding and Digestion in select vertebrates.
CO5	To gain knowledge on distinctive features and distribution of turtles, terrapins, tortoise, migration of marine turtles, breeding biology of Indian crocodiles

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Core Paper 2 ORNITHOLOGY				
Batch 2023-2025	Semester I	Hours / Week 7	Total Hours 105	Credits 5

COURSE OBJECTIVES

1. To understand the Avian classification, structure, morphology, external modification, economic value and threats.
2. To study about the feeding habits and habitat ecology of birds.
3. To study about the skeletal, nervous, respiratory, digestive and urinogenital system of birds.
4. To know about the migration, mechanism of migration.
5. To understand the egg laying, brooding, parental care and nesting of birds.

COURSE OUTCOMES

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

CO1	To understand the classification of birds, structure and morphology of birds, evolutionary adaptations, threats and their economic importance.
CO2	To analyze the digestive system of birds, various feeding habits and habitat ecology of birds.
CO3	To understand the skeletal and respiratory system, migration and nesting of birds
CO4	To understand the urinogenital system, reproduction, breeding season and breeding behavior of birds
CO5	To gain knowledge about nervous system and sense organs, egg laying, clutch size and parental care of birds

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Core Paper 3 MAMMALOLOGY				
Batch 2023-2025	Semester I	Hours / Week 7	Total Hours 105	Credits 5

COURSE OBJECTIVES

1. Understand the classification of mammals.
2. Acquire the knowledge of mammalian physiology.
3. Knowledge about different mammalian species.
4. Levels of organization in mammals.
5. Analyze the ecological and evolutionary affinities of mammals.

COURSE OUTCOMES

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

CO1	To understand the mammalian classification, physiology of different systems, evolutionary adaptation and their economic importance.
CO2	To know about the various carnivorous mammals, their distinctive features, distribution, habit and various strategies to protect them.
CO3	To know about the various herbivorous mammals, their distinctive features, distribution, habit and various strategies to protect them.
CO4	To acquire a knowledge on life history parameters, population dynamics and various population estimation methods
CO5	To study the history, adaptations, behavior, social organization, mating systems, communication.

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the Practical Core Practical 1 ICTHYOLOGY & HERPETOLOGY, ORNITHOLOGY AND MAMMALOLOGY				
Batch 2023-2025	Semester I	Hours / Week 4	Total Hours 60	Credits 2

Pre-requisite: Fundamental knowledge on animal anatomy and biodiversity

COURSE OBJECTIVES

1. To understand important physiological functions in various vertebrate forms.
2. To understand the functions of nervous system and sense organs.

COURSE OUTCOMES

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

CO1	Know morphometric character of fishes and reptiles
CO2	Attain knowledge about locomotory organs, locomotion, feeding and digestion of some vertebrates
CO3	Gain knowledge about vertebrate classification, as well as structure and function of some vertebrates
CO4	Know about mist net techniques and methods of bird ringing
CO5	Understand the evolutionary modifications of fore limb from fishes to mammals

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Core Paper 4 ECOLOGY AND EVOLUTION				
Batch 2023-2025	Semester II	Hours / Week 6	Total Hours 90	Credits 5

COURSE OBJECTIVES

1. To understand basics of ecology.
2. To elucidate the interaction of animals with ecosystem.
3. To know about the various pollution
4. To understand the evolution, fossils and fossilization
5. To understand the basic phylogeny of animals.

COURSE OUTCOMES

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

CO1	To learn various limiting factors in ecology, population ecology and community ecology
CO2	To understand about the structure and functions of various ecosystems and biogeochemical cycles
CO3	To learn about various pollutions, Environmental Impact Assessment, remote sensing and Geographical Information System
CO4	To understand the origin of life on earth, evolutionary time scale, concepts of evolution, fossil and fossilization
CO5	To know about the concepts of phylogenetics, DNA hybridization, molecular clocks and DNA barcoding

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Core Paper 5 ETHOLOGY OF WILDLIFE				
Batch 2023-2025	Semester II	Hours / Week 5	Total Hours 75	Credits 5

COURSE OBJECTIVES

1. To provide overview of introduction to behaviour in wild animals.
2. To make aware of pheromones and hormonal actions in animal behaviour.
3. To understand the biological rhythms and communication systems.
4. To narrate the breeding and parental care of wildlife.
5. To understand the social behaviour of mammals.

COURSE OUTCOMES

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

CO1	To understand the concepts, types and analysis of animal behaviour
CO2	To know about the physiological mechanism of animal behavior, role of hormones and pheromones, and various methods of studying behaviour
CO3	To analyze the biological rhythms, various communication system of animals, foraging behavior of mammals and birds
CO4	To gain knowledge about the breeding behavior of animals and parental care in amphibians, reptiles and mammals
CO5	To understand the social commensalism and social behaviour of selected mammals.

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Core Paper 6 FOREST ENTOMOLOGY				
Batch 2023-2025	Semester II	Hours / Week 5	Total Hours 75	Credits 5

COURSE OBJECTIVES

1. To learn the classification and taxonomy of insects.
2. To study the digestive, reproductive, excretory system of insects.
3. To study about biology and economic importance of insects.
4. To study the pest of teak, sandalwood and bamboo.
5. To learn the insect infestation, survey and control measures.

COURSE OUTCOMES

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

CO1	Gain knowledge on classification, taxonomy, morphology, anatomy, structure and various mouthparts of insects
CO2	Elucidate physiology, digestion, muscular system, excretory system and reproductive system of insects
CO3	Gain knowledge on biology of honey bee, silk moth, lac insect, culture methods of selected insects and various beneficial insects
CO4	Understand the destructive insects, biology, pests of teak, sandalwood and bamboo, damage caused and control measures
CO5	Understand the detection and estimation of insect infestation and their control methods

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Core Paper 7				
CONSERVATION OF BIODIVERSITY OF WILDLIFE				
Batch 2023-2025	Semester II	Hours / Week 5	Total Hours 75	Credits 5

COURSE OBJECTIVES

1. To understand the significance of biodiversity.
2. To understand the conservation of natural resources.
3. To make understand the wildlife organizations.
4. To gain knowledge about protected areas and its conservation.
5. To understand the wildlife laws and legislation.

COURSE OUTCOMES

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

CO1	Learn the significance of biodiversity, biogeographical classification of India, loss of biodiversity, hotspots, <i>in-situ</i> and <i>ex-situ</i> conservation.
CO2	Understand the natural resources, distribution and conservation of forests, types of wetlands and their importance.
CO3	To make understand the state, national and international organizations, wildlife policies and biodiversity acts.
CO4	Understand the concept of protected area, wildlife wealth and their depletion, wildlife conservation approaches and limitations.
CO5	Understand the wildlife trade, wildlife laws and legislation, human-wildlife conflict and mitigation measures, project tiger and elephant.

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Core Practical 2				
ECOLOGY & EVOLUTION AND ETHOLOGY OF WILDLIFE				
Batch 2023-2025	Semester II	Hours / Week 2	Total Hours 30	Credits 2

COURSE OBJECTIVES

1. Explain core concepts in ecology and summarize our ecological understanding of environmental problems
2. To train how the biological data are processed and interpretations are made.
3. To provide an overview of mapping techniques.
4. To teach various behaviors of wild animals

COURSE OUTCOMES

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

CO1	Classify the ecosystem
CO2	Calculate various species diversity measures
CO3	Understand the physical and chemical concepts in biology.
CO4	Understand how to study the behaviour
CO5	Understand communal ecology in mammals.

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Core Practical 3				
FOREST ENTOMOLOGY AND CONSERVATION OF BIODIVERSITY OF WILDLIFE				
Batch 2023-2025	Semester II	Hours / Week 2	Total Hours 30	Credits 2

COURSE OBJECTIVES

1. To know the insects and its role
2. To study the life cycle of select insect species
3. To know the *In-situ* and *Ex-situ* conservation of wildlife
4. To address and evaluate the human wildlife conflict
5. Assessment of illegal wildlife trade

COURSE OUTCOMES

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

CO1	Understand various methods in forest conservation
CO2	Gain knowledge on damages caused by the destructive insects.
CO3	Know about the beneficial insects.
CO4	Gain knowledge on <i>in-situ</i> and <i>ex-situ</i> conservation of wild animals
CO5	Understand about wildlife and its management

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Core Paper 8				
PHYSIOLOGY AND HEALTH CARE OF WILDLIFE				
Batch 2023-2025	Semester III	Hours / Week 8	Total Hours 120	Credits 5

COURSE OBJECTIVES

1. To study about the adaptation of animals in various environments.
2. To acquire knowledge on the osmo and thermo regulatory mechanisms.
3. Understand the respiratory organs, structure and functions.
4. To understand the excretory physiology and the role of hormones in the biological activities such as gestation and lactation
5. To acquire knowledge on the neural and muscular physiology.

COURSE OUTCOMES

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

CO1	Acquire the knowledge on the concepts of adaptation, homeostasis and organisms surviving in various environments
CO2	Learn about mechanism of thermo and osmoregulation, osmoregulation in aquatic and terrestrial environment and the importance of physiological activities
CO3	Understand the respiratory organs, function and transportation of respiratory gases
CO4	Gain knowledge on excretory organs, mechanism, adaptation, excretory products, endocrine glands, role of reproductive hormones, gamete formation, fertilization, embryonic development, parturition and lactation
CO5	Understand about the neuron structure and types, nerve impulse transmission, neuro degenerative diseases, muscular physiology and muscle contraction

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY			
Title of the paper: Core Paper 9					
MANAGEMENT OF ZOOS, SANCTUARIES AND NATIONAL PARKS					
Batch 2023-2025	Semester III		Hours / Week 8	Total Hours 120	Credits 5

COURSE OBJECTIVES

1. To know the Sanctuaries, National Parks, Biosphere Reserves and Wildlife Projects.
2. To know the captive animal breeding and management.
3. To gain knowledge about habitat restoration, corridor management, introduction and reintroduction of species.
4. Techniques of tranquilization and translocation of animals, wildlife diseases

COURSE OUTCOMES

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

CO1	To know the concepts, formation and management of the Wildlife Sanctuaries
CO2	To know the concepts, formation and management of Biosphere Reserves the National Parks and Wildlife Projects
CO3	To understand the definition, aim, formation and management of the Zoos
CO4	To gain knowledge on habitat restoration, corridor management, exotic and invasive species, introduction and reintroduction of species
CO5	To understand the diseases of wild animals, tranquilization and transportation of problematic animals

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the Practical: Core Practical 4 PHYSIOLOGY AND HEALTHCARE OF WILDLIFE				
Batch 2023-2025	Semester III	Hours / Week 4	Total Hours 60	Credits 2

COURSE OBJECTIVES

1. To understand physiology through practical

COURSE OUTCOMES

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

CO1	Understand the effect of temperature
CO2	Know the gravity of blood
CO3	Gain the knowledge on the effect of salinity on oxygen intake
CO4	Estimation of ammonia, urea and Uric acid from excreta
CO5	Estimation of haemoglobin content

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the Practical: Core Practical 5				
MANAGEMENT OF ZOOS, SANCTUARIES AND NATIONAL PARKS				
Batch 2023-2025	Semester III	Hours / Week 4	Total Hours 60	Credits 2

COURSE OBJECTIVES

The main objectives of this course are to:

1. Know the various Protected Areas (PAs)
2. Feed Preparation for zoo and tamed animals
3. Designing animal cages
4. Restraining animals using drugs and equipments

COURSE OUTCOMES

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

CO1	Understand various Protected Areas
CO2	Understand about the feeding of zoo animals
CO3	Know about the captive breeding.
CO4	Knowledge about wildlife diseases
CO5	Analyse about the conflict

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Core Paper 10				
WILDLIFE MANAGEMENT TECHNIQUES				
Batch 2023-2025	Semester IV	Hours / Week 8	Total Hours 120	Credits 5

COURSE OBJECTIVES

1. To make understand the applications and basic wildlife equipments.
2. To acquire the knowledge of GPS and mapping techniques
3. To sensitize the students on wildlife population estimation techniques.
4. To understand the survey and mapping of water resources and conservation.
5. To understand plant-insect interaction and management

COURSE OUTCOMES

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

CO1	Acquire the knowledge on uses of various field equipments
CO2	Gain the mechanism of GIS, Remote sensing and Radio Collaring methods
CO3	Learn the wildlife population estimation methods and tools used in estimation
CO4	Know the survey and mapping of water resources, wildlife conflicts, wildlife damage control, anti-poaching operations
CO5	Feeding and reproductive behaviour of insects, insect plant interaction and insect management

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Core Practical 6 WILDLIFE MANAGEMENT TECHNIQUES				
Batch 2023-2025	Semester IV	Hours / Week 4	Total Hours 60	Credits 2

COURSE OBJECTIVES

The main objectives of this course are:

1. To make understand the applications and basic wildlife equipments.
2. To acquire the knowledge on handling the equipment related to wildlife.
3. To learn GIS and Remote sensing uses and its applications on wildlife management.
4. To sensitize the students on wildlife population estimation techniques.
5. To understand drugs related to chemical restraints of the animals.

COURSE OUTCOME

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

CO1	Acquire the knowledge in wildlife and equipments usage in the field
CO2	Learn the significance of various field equipments
CO3	Understanding molecular methods in wildlife
CO4	Appreciate the mechanism of GIS, Remote sensing and Radio Collaring methods in wildlife
CO5	Evaluate various types of population estimation, mapping techniques and wild animals health monitoring and postmortem techniques

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: PROJECT & VIVA – VOCE				
Batch 2023-2025	Semester IV	Hours / Week 14	Total Hours 210	Credits 8

COURSE OBJECTIVES

1. To acquire inherent knowledge and exposures on relevant practical problems in various fields.
2. To understand the data interpretation
3. To acquire the knowledge on thesis writing.

COURSE OUTCOMES

On successful completion of the project work, the students will be able to

CO1	Apply theoretical knowledge in the real field of wildlife research
CO2	Analyze the importance of tasks in collecting the data
CO3	Evaluate relationships existing between theories and experiments
CO4	Provide problem solving skills on selected problems in any disciplines of animal sciences
CO5	Execute appropriate statistical tools and interpretation of appropriate results

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Major Elective FORESTRY AND SILVICULTURE				
Batch 2023-2025	Semester I	Hours / Week 5	Total Hours 75	Credits 5

COURSE OBJECTIVES

1. To explain the core concepts of ecology for a better understanding of the environment.
2. To motivate, identify and solve environmental problems.
3. To create awareness about the improvement and protection of the environment.
4. To make understand the need for conservation of biodiversity and natural resources.
5. To help understand the concepts of exobiology.

COURSE OUTCOMES

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

CO1	Understand the ecological dynamics and the significance of environmental integrity
CO2	Recognize various global and regional environmental concerns that affect the biosphere and analyze the impact of human activities on the environment.
CO3	Appreciate the significance of the conservation of native biodiversity.
CO4	Scrutinize specific cases of environmental pollution and challenges, and their impacts on ecology.
CO5	Apply knowledge of chemistry, biology, molecular biology and microbiology to arrive at innovative solutions to environment issues and extra-terrestrial habitats.

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Major Elective: ETHNOBIOLOGY				
Batch 2023 -2025	Semester I	Hours/Week 5	Total Hours 75	Credits 5

COURSE OBJECTIVES

1. To provide the history and concepts of ethnobiology
2. To understand the folk biological classification and nomenclature
3. To impart ethics in ethnobotany, ethnozoology, ethnomycology and ethnoecology
4. To understand the inherent knowledge on traditional system of herbal medicine

COURSE OUTCOMES

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

CO1	To learn the history and concepts of ethnobiology
CO2	To know indigenous intellectual property and rights
CO3	To learn ethnobotany and ethnozoology,
CO4	To learn ethnomycology and ethnoecology
CO5	To understand the inherent knowledge on traditional system of medicine

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Major Elective BIOTECHNOLOGY AND GENETIC ENGINEERING				
Batch 2023-2025	Semester II	Hours / Week 5	Total Hours 75	Credits 5

COURSE OBJECTIVES

1. To make aware of the students about the theories, concepts and basics of Biotechnology.
2. To provide knowledge about tissue culture.
3. To acquire knowledge about molecular methods involved in genetic engineering.

COURSE OUTCOMES

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

CO1	Understand methodological approach to the study of Biotechnology.
CO2	Identify and understand the sex of the animals.
CO3	Develop an idea, how to arrange sequences of DNA.
CO4	Understand the Recombinant Techniques.
CO5	Attain a basic conceptual knowledge of the principle Mechanisms of the genetic and molecular elements that are involved.

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the Paper: Major Elective WILDLIFE CRIME				
Batch 2023-2025	Semester II	Hours / Week 5	Total Hours 75	Credits 5

COURSE OBJECTIVES

1. To study about the types of wildlife crime like, poaching, illegal wildlife trade, illegal hunting
2. To acquire knowledge on the socio-economic factors that contribute to wildlife crime
3. To study about the effectiveness of existing laws, policies, and enforcement measures
4. To acquire knowledge on the wildlife crime and investigation, intelligence gathering, and organized crime
5. To Understand the impact of wildlife crimes, policy and law enforcement agencies

COURSE OUTCOMES

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

K1 to K5	CO1	Acquire the knowledge of various types of wildlife crimes such as poaching, illegal wildlife trade, illegal hunting
	CO2	Learn about how the socioeconomic variables influencing wildlife crime in India
	CO3	Know the existing laws and policies to conserve the flora and fauna conservation
	CO4	Learn about the concept of wildlife crime, investigation of wildlife crime, intelligence gathering, investigation of organized wildlife crimes and networks
	CO5	Understand the impact of wildlife crimes and law enforcement agencies

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Non-Major Elective RESEARCH METHODOLOGY				
Batch 2023-2025	Semester III	Hours / Week 4	Total Hours 60	Credits 4

COURSE OBJECTIVES

1. To understand about research.
2. To acquire the knowledge on thesis writing.
3. To learn the methodology about the research work.
4. To understand the data interpretation.
5. To sensitize the students to study about research.

COURSE OUTCOMES

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

CO1	Acquire the knowledge on research
CO2	Learn significance of writing literature.
CO3	Understanding the data interpretation.
CO4	Evaluate the results of interpreted data.
CO5	Understand the significance of research.

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Non-Major Elective BIOSTATISTICS, APPLICATION OF COMPUTING & ARTIFICIAL INTELLIGENCE 4.0				
Batch 2023-2025	Semester III	Hours / Week 4	Total Hours 60	Credits 4

COURSE OBJECTIVES

1. To understand about research.
2. To learn the methodology about the research work.
3. To understand the data interpretation.
4. To sensitize the students to study about research.

COURSE OUTCOMES

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

CO1	Acquire the knowledge on research
CO2	Learn significance of data collection
CO3	Understanding the data interpretation.
CO4	Evaluate the results of interpreted data.
CO5	Learn the significance of softwares in research.

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Non-Major Elective INFORMATION SECURITY				
Batch 2023-2025	Semester IV	Hours / Week 4	Total Hours 60	Credits 4

COURSE OBJECTIVES

1. Students will identify the core concepts of Information security.
2. To examine the concepts of Information Security.
3. To design and implement the security features for IT and Industrial sectors

COURSE OUTCOMES

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

CO1	To Learn the principles and fundamentals of information security.
CO2	To Demonstrate the knowledge of Information security concepts
CO3	To Understand about Information Security Architecture.
CO4	To Analyze the various streams of security in IT and Industrial sector.
CO5	To know about cyber laws and regulations.

Programme Code: 27		M.Sc. WILDLIFE BIOLOGY		
Title of the paper: Non-Major Elective ENVIRONMENTAL SCIENCE				
Batch 2023-2025	Semester IV	Hours / Week 4	Total Hours 60	Credits 4

COURSE OBJECTIVES

1. To study about the need of environmental conservation
2. To acquire knowledge on the natural resources
3. To study about the ecosystem
4. To acquire knowledge on the biodiversity
5. To Understand the environmental pollution

COURSE OUTCOMES

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

CO1	Acquire the knowledge of importance of environmental conservation
CO2	Learn about the role of natural resources
CO3	Know the importance of ecosystem, forest ecosystem, grassland ecosystem and aquatic ecosystem
CO4	Understand about the value of biodiversity, hotspots of biodiversity conservation of biodiversity
CO5	Learn about various types of the environmental pollution

Programme Code: 27		For PG STUDENTS		
Extra Departmental Course (EDC) - WILDLIFE CONSERVATION				
Batch 2023-2025	Semester III	Hours / Week 2	Total Hours 30	Credits 2

COURSE OBJECTIVES

- To learn about the distribution of wild animals.
- To study about importance of wildlife.
- To acquire knowledge on wildlife crime and threats to wildlife.

COURSE OUTCOMES

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

CO1	Understand the distribution of wild animal species across India
CO2	Know the importance of wildlife and their role in forest ecosystem
CO3	Develop the knowledge on why to conserve wild animals
CO4	Analyze the knowledge on various wildlife crime and illegal wildlife trade in India
CO5	Evaluate various threats to wildlife