Department of Zoology, Goalpara College, Goalpara

Program Outcomes: B Sc Programme

The program outcomes of a Bachelor of Science (B.Sc.) program can vary depending on the specific field of study or major within the program. However, here are some general program outcomes that are often applicable to many B.Sc. programs:

1. **Foundational Knowledge**: Graduates to have a strong foundation in the core principles, theories, and concepts of their chosen field of science.
2. **Problem-Solving Skills**: Graduates to be able to apply critical thinking and problem-solving skills to analyse and solve complex scientific problems.
3. **Research Skills**: Graduates to be able to conduct research, collect and analyse data, and draw meaningful conclusions from their findings.
4. **Communication Skills**: Graduates to be able to communicate scientific ideas and information effectively, both in writing and orally, to a variety of audiences.
5. **Ethical and Professional Conduct**: Graduates to understand and adhere to ethical principles and professional standards relevant to their field of study.
6. **Adaptability**: Graduates to be prepared to adapt to new technologies, methodologies, and emerging trends in their field.
7. **Teamwork**: Graduates to be able to collaborate effectively with colleagues and work as part of interdisciplinary teams when necessary.
8. **Independent Learning**: Graduates to have the ability to engage in self-directed learning and continue their education and professional development throughout their careers.
9. **Quantitative and Analytical Skills**: Graduates to have a strong foundation in mathematics and be proficient in quantitative analysis and statistical methods.
10. **Lab and Experimental Skills**: Depending on the program, graduates to have practical laboratory and experimental skills relevant to their field of study.
11. **Environmental and Social Awareness**: Graduates to understand the impact of scientific advancements on society and the environment, including ethical considerations related to sustainability and social responsibility.
12. **Application of Technology**: Graduates to be proficient in the use of technology and scientific instruments relevant to their field.
13. **Critical Evaluation of Scientific Literature**: Graduates to be able to critically evaluate and interpret scientific literature and stay updated on the latest research in their field.
14. **Global Perspective**: Graduates to be aware of global scientific issues and have the ability to

collaborate with researchers and professionals from diverse cultural backgrounds.

15. **Career Readiness**: Graduates to be prepared for a variety of career paths, including further education, research, industry, government, healthcare, or teaching, depending on their major and specialization.

PROGRAMME SPECIFIC OUTCOME (BSc Zoology)

I. Knowledge and Understanding:

a. In invertebrate zoology, students get the opportunity to learn the diversity of invertebrate and vertebrate organisms from protists to mammals.

b. Students learn the basic scheme of classification of animals along with general characteristics of each group.

c. Students will gain adequate knowledge on the anatomy and physiology of a representative individual of each group.

d. Students will learn the basics of ecology, ecosystem, evolution and the role of animals in the ecosystem.

e. Students get the opportunity to learn the microscopic world in the form of single cell and intracellular organelles. They will also learn various cellular activities starting from cellular respiration to cell signaling.

f. Students learn the fundamentals of biomolecules, biochemistry and molecular biology.

g. Students will get the knowledge of genetic material and the transmission generation after generation. This will help them to understand the transmission of genetic disorder.

h. Students will learn the foetal, embryonic and post embryonic development among the organisms.

i. Understanding of how organisms' function at the level of the gene, genome, cell, tissue,organ and organ-system. Drawing upon this knowledge, they are able to study the histology and comprehend the comparative anatomy of the organisms.

j. The student will get the basic idea of biostatistics and bioinformatics that will help them in analysis of various biological and biotechnological events and activities.

k. The students will be able to understand the necessity and importance of pollution control and conservation of nature and natural resources.

l. The students will acquire the knowledge of small-scale industries like sericulture, fish farming, ornamental fish culture etc. Understanding of the applied biological sciences or economic Zoology such as sericulture, apiculture, aquaculture, lac culture, pest and its management for their career opportunities.

m. The students will understand the concepts of heredity, genetics, evolution and its importance inhuman health and development.

n. They will be able to apply the knowledge and understanding of zoology in their own life and the animals around.

o. Finally, they will develop a sense of sympathy, empathy, love and respect towardsthe other individuals.

p. Make able to think logically from the knowledge gathered undertaking research project, assimilate and analysis of the data and ideas and concluding in the form of project report.

Practical Skills:

a. Students learn the plotting of data and preparation of different types of curves and calculation of different types of indices.

b. Students will learn the calculation of water quality parameters and identification of aquatic organisms.

c. Students will get exposure to different species of animals through field visits to several conservation sites.

d. Students will get the opportunity to study different animals and their body parts through museum specimens, temporary and permanent slides.

e. Students will learn several techniques of detection and estimation of biomolecules.

f. Students will get hands-on training on the latest computational bioinformatics tools and techniques.

Communication and Other Skills:

1. Students are allowed to prepare topics from their syllabus and present before both teachers and classmates to polish their presentation and communication skills.
2. While performing the project work, students are encouraged to participate in group discussion with the supervisor and classmates. This develops a confidence and art of speaking/delivery on a public platform. Sometimes projects are carried out in groups. by that process, they develop a team spirit, sportsmanship etc.
3. The course exposes the students to various facets of computer programming and other relevant diagnostic techniques that may have important applications in developing future technology.

Higher Studies:

1. After the successful completion of this course, a student becomes eligible to pursue higher studies such as M.Sc. (Zoology, Life Science, Microbiology, Ecology, Biotechnology and several other allied subjects) in different reputed institutions across the country.
2. A student of B.Sc. Zoology may get the opportunity to pursue a course on Biochemistry, Biophysics, Bioinformatics, Genetic engineering and so forth.

Career Opportunities

A degree in zoology opens up a wide range of career opportunities in various fields related to the study of animals and their behaviour. Here are some career options for students of zoology:

1. **Research Scientist**: A student of Zoology can work as research scientists in universities, research institutions, or government agencies. They conduct experiments, fieldwork, and lab research to advance our understanding of animal biology and behaviour.
2. **Wildlife Biologist**: A student of Zoology can pursue his/her career as wildlife biologist to study and monitor animal populations in their natural habitats.
3. **Zoo or Aquarium Curator**: A student of Zoology can pursue his/her career as Zoo or Aquarium Curator. Curators manage and oversee the care of animals in zoos and aquariums. They are responsible for creating exhibits, coordinating animal breeding programs, and ensuring the well-being of the animals in their care.
4. **Conservation Officer**: A student of Zoology can pursue his/her career as Conservation officer to work to protect and preserve natural ecosystems and wildlife. They enforce environmental laws and regulations, investigate wildlife crimes, and promote conservation efforts.
5. **Veterinarian**: Zoology students can pursue further education and become veterinarians. They diagnose and treat illnesses and injuries in animals, which can include domestic pets, zoo animals, and wildlife.
6. **Animal Behaviourist**: Zoology students can pursue career as Animal behaviourists to study the behaviour of animals to understand their communication, social interactions, and environmental adaptations. They may work in research, animal training, or consulting.
7. **Environmental Consultant**: Zoology students can work as environmental consultants for government agencies, private companies, or non-profit organizations. They assess the impact of human activities on ecosystems and develop strategies for sustainable practices.
8. **Wildlife Rehabilitation Specialist**: One important career option is Wildlife Rehabilitation Specialist. These professionals care for injured or orphaned wildlife, providing medical treatment and rehabilitation with the goal of releasing them back into the wild.
9. **Teaching and Academia**: Zoology students can pursue careers in education, becoming teachers or professors at schools, colleges, or universities. They may also conduct research and publish scientific papers.
10. **Science Communication**: Zoology students with strong communication skills can work as

science writers, science educators, or science communicators, translating complex scientific concepts for the public through writing, media, or public outreach.

11. **Marine Biologist**: A Zoologist can become a marine biologist, studying aquatic organisms and ecosystems in oceans, seas, and freshwater bodies.
12. **Biotechnology and Pharmaceutical Industry**: Zoology students find opportunities in biotechnology and pharmaceutical companies, working on research related to animal genetics, physiology, or drug development.
13. **Non-profit and Conservation Organizations**: Many non-profit organizations, such as the World Wildlife Fund (WWF) and The Nature Conservancy, hire zoologists to work on conservation and wildlife protection projects.
14. **Animal Welfare and Ethical Research**: Zoologists can also work in organizations dedicated to animal welfare, ethics in research, and the humane treatment of animals in various settings.

Ethics:

1. In the process of project preparation students will be made aware of IP tools such ascopyright. They will learn about plagiarism issues and will practice genuine techniques in preparing projects and other reports related to academics. This will develop an independent feel and bring out creativity among them.
2. Students will understand the protocols of Laboratory work and learn discipline in performing their duties

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COURSE OUTCOME

BSc Zoology (Honours) Syllabus (CBCS)

Semester	Course Code	Course Name	Course Outcome	Bloom's Taxonomy Level
I	ZOO-HC-1016	Non-Chordates - 1	CO 1: Students will be familiar with the non-chordates up to annelida that surround us. CO 2: The course will enable the students to understand the process of evolution (unicellular cells to complex multicellular organisms). CO 3: At the end of the course, the students are expected to be able to identify the invertebrates and classify them up to the class level with the basis of systematic. CO 4: The course will enable students to understand the basis of life processes in the selected species	Remember, Understand, Apply

			of non-chordates and recognize the economically important invertebrate fauna.	
		Practical	Prepare whole mount, lifecycle of various organismIncluded under above mentioned kingdoms and phyla.	Remember, Understand, apply
	ZOO-HC-1026	Principle of Ecology	CO 1: Know the evolutionary and functional basis of animal ecology. CO 2: Understand what makes the scientific study of animal ecology a crucial and exciting endeavour. CO 3: Engage in field-based research activities to understand well the theoretical aspects taught besides learning techniques for gathering data in the field. CO 4: Analyse a biological problem, derive testable hypotheses and then design experiments and put the tests into practice. CO 5: Solve the environmental problems involving interaction of humans and natural systems at local or global level.	Remember, Understand, Apply, evaluate

			CO 6: Understand, anticipate, analyse and evaluate natural resource issues and act on a lifestyle that conserves nature. CO 7: Understand and appreciate the diversity of ecosystems and apply beyond the syllabi to understand the local lifestyle and problems of the community. CO 8: Link the intricacies of food chains, food webs and link it with human life for its betterment and for non-exploitation of the biotic and abiotic components. CO 9: Develop leadership skills among them to promote betterment of the environment.	
		Practical	Through the practical study Students will come to know about the practical use of various population characteristics, community and ecosystem services. Visit to National Park/ Biodiversity Park/wildlife sanctuaries will give them live study of ecology.	Remember, Understand
	ZOO-HG-1016/ZOO-RC-1016	Animal Diversity	CO 1: Develop understanding on the diversity of life with regard to protists, non-chordates and	Remember, Understand

			chordates. CO 2: Group animals on the basis of their morphological characteristics/ structures and to understand the differences and similarities in the various aspects of classification. CO 3: Develop critical understanding of how animals changed from a primitive cell to a collection of simple cells to form a complex body plan. CO 4: Examine the diversity and evolutionary history of a taxon through the construction of a basic phylogenetic/ cladistics tree. CO 5: Understand how morphological change due to change in the environment helps drive evolution over a long period of time. CO 6: Understand the animal diversity both vertebrate and invertebrate around us. CO 7: Understand the underlying principles of classification of animals.	

		Practical	Students will learn to identify different specimens. They will also learn to identify poisonous and non-poisonous snakes.	Remember, Understand
II	ZOO-HC-2016	Non-Chordates II: Coelomates	CO 1: Understand the diversity and classification and functional aspects of different systems of phylum Annelida, Arthropoda, Mollusca and Echinodermata. CO 2: Describe the social life and economic importance of insects. CO 3: Understand the physiology of pearl formation and pearl oyster formation. CO 4: Describe the advanced characteristic features of cephalopods and molluscs. CO 5: Ascertain resemblance and evolutionary significance of larval forms of echinoderms. .	Remember, Understand, Apply
		Practical	Students are able to understand about the museum specimen, anatomical and morphological structure and preparation of slide.	Remember, Understand, Apply
	ZOO-HC-2026	Cell Biology	CO 1: Understand the functioning of nucleus and extra nuclear organelles and	Remember, Understand

			understand the intricate cellular mechanisms involved. CO 2: Understand the structure of cells and cell organelles. CO 3: Describe the composition and comparison of prokaryotic and eukaryotic cells. CO 4: Understand the structure and functions of chromosomes; mitotic and meiotic cell divisions and their significance. CO 5: Explain the cell cycle, cell signalling and their regulation.	
		Practical	Students are able to understand about the preparation of various stains and fixatives, determination of protein, mucopolysaccharides and Chromosome.	Remember, Understand, Apply
	ZOO-HG-2016 ZOO-RC-2016	Comparative anatomy & developmental biology of Vertebrates	CO 1: Get ample knowledge about the comparative structures of heart, aortic arches, kidney, balancing organ, hearing organ, respiratory organs, brain of different animals. CO 2: Gain knowledge of functional anatomy of the organ system.	Remember, Understand

			CO 3: Understand the evolution and changes that occur in each organ system of organisms according to their need and environment. CO 4: Understand the mechanism of pre and post embryonic development of mammals and their control system	
		Practical	Students will learn about developmental stages of frogs through permanent slides, will study about different types of placenta through permanent slides etc.	Remember, Understand
III	ZOO-HC-3016	Diversity of Chordata	CO 1: Describe the diversity in form, structure and habits of chordates. CO 2: Explain general characteristics and classification of different classes of vertebrates. CO 3:Get the knowledge on ecology of some important fishes, amphibians, reptiles, birds and mammals. CO 4: Discuss some and very important phenomena in Chordates. CO 5: Understand the origin, evolution and distribution of the organisms in the	Remember, Understand, Apply

			different parts of the earth.	
		Practical	Students are able to understand about the general characteristics, classification, metamorphosis and animal distribution.	Remember, Understand, Apply
		Practical	Students are able to understand and learned about the various microscopic procedures including microtomy, permanent slides study.	Remember, Understand

	ZOO-HC-3036	Fundamentals of Biochemistry	CO 1: Understand about the importance and scope of biochemistry. CO 2: Understand the structure and biological significance of carbohydrates, amino acids, proteins, lipids and nucleic acids. CO 3: Understand the structure and function of immunoglobulins. CO 4: Understand the concept of enzyme, its mechanism of action and regulation. CO 5: Learn the preparation of models of peptides and nucleotides. CO 6: Learn biochemical tests for amino acids, carbohydrates, proteins and nucleic acids. CO 7: Learn measurement of enzyme activity and its kinetics.	Remember, Understand, Apply
		Practical	Students are able to understand and learned various technique of separation and determination of protein, lipid, carbohydrates etc.	Remember, Understand, Apply
	ZOO-SE-3014	Ornamental Fish & Fisheries	CO 1: Described the ornamental fish and their diversity in NE India. CO 2: Understand the various type's aquatic plants necessary for	Remember, Understand

			aquaculture practices. CO 3: Understand the physiology and reproductive mechanisms of ornamental fishes. CO 4: Understand the modern techniques and methods of aquarium preparation and maintenance. CO 5: Get the knowledge of ornamental fish breeding which is a highly professional and attractive avenue for youth.	
		Practical	Students will learn about different ornamental fishes, their maintenance etc. They will also learn to make and maintain aquarium.	Remember, Understand, Apply
	ZOO-HG-3016 ZOO-RC-3016	Physiology And Biochemistry	CO 1: Understand the entire animal's functions of the body. It includes Digestion, Excretion, Respiration, Cardiovascular, Reproductive and Endocrine etc in which all structure, function, process and control are studied. CO 2: Explain various aspects of physiological activities of animals with special reference to	Remember, Understand

			humans. CO 3: Explain the various mechanisms of carbohydrate, protein, lipid metabolism and enzyme action. CO 4: Explain the basic principles of biochemistry and bioenergetics useful for biological studies for illustrating different structures, function and metabolism.	
		Practical	Students will learn about preparation of hemin crystals, will examine histological sections of mammalian endocrine glands. They will learn to perform qualitative tests to identify functional groups of carbohydrate, and to estimate total protein in a given solution.	Remember, Understand, Apply

IV	ZOO-HC-4016	Comparative Anatomy of Vertebrates	CO 1: Develop an understanding of the characters used to classify besides being able to differentiate the organisms belonging to different taxa. CO 2: Realise that very similar physiological mechanisms are used in diverse organisms. CO 3: Get ample knowledge about the comparative account of Integumentary system , Skeletal system, Digestive system, Respiratory system, Circulatory system, Urinogenital system, Nervous system, Sense Organ, aortic arches, kidney, balancing organ, hearing organ, respiratory organs, brain of different animals. CO 4: Gain knowledge of functional anatomy of the organ system. CO 5: Understand the evolution and changes that occur in each organ system of organisms according to their need and environment.	Remember, Understand, Apply
		Practical	Students are able to under-stand and learned various skeletal parts of different organisms and their structural component.	Remember, Understand

	ZOO-HC-4026	Animal Physiology: Life Sustaining Systems	CO 1: Understand the basic functions of the body with reference to humans. It includes Digestion, Excretion, Respiration, Cardiovascular, etc in which all structure, function, process and control are studied. CO 2: Explain various aspects of physiological activities of animals with special reference to human. CO 3: Understand the details of blood composition, blood corpuscles type structure function, blood groups, blood coagulation etc. CO 4: Students gain fundamental knowledge of the physiology of homeostasis.	Remember, Understand
		Practical	Students will learn about determination of ABO blood group, enumeration of RBCs and WBCs, preparation of haemin crystals. They will also learn to record blood pressure using a Sphygmomanometer.	Remember, Understand

IV	ZOO-HC-4036	Biochemistry ofMetabolic Processes	CO 1: Explain the various mechanisms of carbohydrate, protein, lipid metabolism. CO 2: Explain the basic principles of biochemistry and bioenergetics useful for biological studies for illustrating different structures, function and metabolism. CO 3: Understand the interactions and interdependence of physiological and biochemical processes. CO 4: Explain various biochemical pathways involved in metabolic processes.	Remember, Understand, Apply
		Biochemistry ofMetabolic Processes	Students are able to learn various essays from serumand tissues.	Remember, Understand
	ZOO-SE-4024	Non-Mulberry Sericulture	CO 1: Describe Taxonomy and Systematic of different species of silkworms found in NE India. CO 2: Understand the physiology, anatomy and rearing of different Non-mulberry silk worms. CO 3: Get the knowledge of food plants of Eri and Muga silk worms. CO 4: Know about the culture methods of Non mulberry silk	Remember, Understand

		Practical	Students will learn about life cycle of Muga & Eri silkworm. They will be able to identify different stages of life cycles, primary & secondary food plants, also will learn about different diseases.	Remember, Understand
	ZOO-HG-4016 ZOO-RC-4016	Genetics and Evolutionary Biology	CO 1: Students will comprehend the mechanisms and processes of evolution, including natural selection, genetic drift, gene flow, mutation, and speciation. CO 2: They'll be able to analyze genetic data, including pedigrees, DNA sequences, and genetic maps, using appropriate laboratory and computational techniques. CO 3: Understanding how genetic variation contributes to phenotypic diversity and its role in evolution, disease susceptibility, and human traits. CO 4: Applying genetic principles to understand genetic disorders, genetic engineering, and biotechnology.	Remember, Understand
		Practical	Student will learn about Mendelian Inheritance and Gene Interaction using suitable examples. They will study linkage, recombination and gene mapping using data, also will be able to identify	Remember, Understand

			normal and abnormal human karyotypes.	
V		Molecular Biology	CO 1: Develop an understanding of concepts, mechanisms and evolutionary significance and relevance of molecular biology in the current scenario. CO 2: Get well versed in recombinant DNA technology which holds application in biomedical & genomic science, agriculture, environment management, etc. Therefore, a fundamental understanding of Molecular Biology will help in career building in all these fields. CO 3: Apply their knowledge in problem solving and future course of their career development in higher education and research. CO 4: Get new avenues of joining research in related areas such as therapeutic strategies or related opportunities in industry. CO 5: Understand the fundamentals of micro-molecular structures of cells like DNA, RNA, and Proteins etc. CO 6: Grasp the concept of molecular mechanisms like	Remember, Understand

			replication, transcription and translation both in prokaryotic and eukaryotic cells. CO 7: Learn the concept of post transcriptional and post translational modification for maturation of the end product. CO 8: Learn about the DNA repair mechanism and the regulation of gene expression.	
		Practical	Students are able to under- stand about the estimation ofDNA, RNA and protein synthesis.	Remember, Understand
	ZOO-HC-5026	Principles of Genetics	CO 1: Learn & Apply the principles of Mendelian inheritance. CO 2: Understand the cause and effect of alterations in chromosome number and structure. CO 3: Students will learn about the chromosomal interactions like linkage, crossing over, recombination and chromosomal mapping. CO 4: Students will understand the different types of genetic mutation, their causes and transmission.	Remember, Understand, Apply

			CO 5: The course will enable students to learn about types of inheritance of genetic information generation after generation. CO 6: Relate the conventional and molecular methods for gene detection of gene mutation. CO 7: Discuss and analyse the epigenetic modifications and imprinting and its role in diseases.	
		Practical	Students are able to learn about the pedigree analysis,gene interaction study.	Remember, Understand, Apply
	ZOO-HE-5016	Computational Biology And Biostatistics	CO 1: Know the theory behind fundamental bioinformatics analysis methods. CO 2: Be familiar with widely used bioinformatics databases. CO 3: Know basic concepts of probability and statistics. CO 4: Describe statistical methods and probability distributions relevant for molecular biology data. CO 5: Know the applications and limitations of different bioinformatics and	

			statistical methods. CO 6: Develop understanding in Primer designing.	
		Practical	Students will be able to perform and interpret bioinformatics and statistical analyses with real molecular biology data. They Acquire knowledge of various databases of proteins, nucleic acids. Primary, secondary and composite databases, also learn to perform BLAST, Clustal W etc. They can make phylogenetic predictions or prediction of structure of proteins and nucleic acids.	Remember, Understand
	ZOO-HE-5036	Endocrinology	CO 1: Students will understand neurohormones and neurosecretions. Students will have the understanding of the history of endocrinology, classification and characteristics of different endocrine glands. CO 2: Learn about hypothalamic and hypophysial axis. CO 3: Students will gain knowledge about the structure, secretion and functions of pineal gland, hypothalamus, and pituitary gland &	Remember, Understand

			understand about different endocrine glands and their disorders. CO 4: Students will gain knowledge about the structure, secretion, functions and disorders of several other peripheral glands and about hormone action. CO 5: The students will learn the genetic control and regulation of hormone action at the cellular level.	
		Practical	Students will learn to dissect and display endocrine glands in laboratory breed rat. They will be able to identify and differentiate different glands, also be able to design primers for hormones.	Remember, Understand
	ZOO-RE-5026	Applied Zoology	CO 1: Students will have an understanding of the different types of interaction among the host and parasites. CO 2: Students will gain knowledge about the mode of transmission, prevention and control of different diseases caused by bacteria, protozoa, helminthes.	Remember, Understand, Apply

			CO 3: Students will gain knowledge about the economic and medical importance of some insects associated with human life. CO 4: The students will learn basic techniques of animal husbandry, poultry farming and fish technology.	
		Practical	Student will learn about life stages of Plasmodium, Entamoeba etc. through permanent slides. They will also study about Arthropod vectors associated with human diseases.	Remember, Understand
VI	ZOO-HC-6016	Developmental Biology	CO 1: Get basic concepts of development, pattern formation, growth, differentiation and gene expression. CO 2: Gain knowledge of early embryonic development, late embryonic and post embryonic developmental changes in different organisms & develop critical understanding how a single-celled fertilised egg becomes an embryo and then a fully formed adult by going through three important processes of cell division, cell	Remember, Understand

			differentiation and morphogenesis. CO 3: Understand how developmental processes and gene functions within a particular tissue or organism can provide insight into functions of other tissues and organisms. CO 4: Realise that very similar mechanisms are used in very diverse organisms; and development is controlled through molecular changes resulting in variation in the expression and function of gene networks. CO 5: Gain knowledge about teratogenic agents and their effects on embryonic development CO 6: Acquire ample knowledge about *In vitro* fertilisation, Stem cell culture and amniocentesis.	
		Practical	Students will be able to learn different developmental stages through microscopic study of permanent slides and also from culture-based study of certain animals.	Remember, Understand

ZOO-HC-6026	Evolutionary Biology	CO 1: Understand the origin of life, Chemogeny, Biogeny, Origin of photosynthesis etc. CO 2: Describe the fundamental theories of evolution like Lamarckism, Darwinism, Neo-Darwinism. CO 3:Aware of the various evidence of evolution and the roles of evidence in evolution and the product of evolution. CO 4: Get the knowledge of molecular analysis of human origin and evolution, construction and interpretation of phylogenetic tree.	Remember, Understand
	Practical	Students will be given the opportunity to learn about fossils from models and pictures. They will learn about homology and analogy from suitable specimens.	Remember, Understand
ZOO-HE-6016	Biology of Insecta	CO 1: Students will learn the general characters, classification and distribution of insects. CO 2: Students will have knowledge of general morphology, physiology and social behaviour of insects. CO 4: Students will get an overview of insect plant interaction and their	Remember, Understand

		co-evolution. CO 5: The students will learn about the Insects as mechanical and Biological vectors with special reference to housefly and mosquitoes.	
	Practical	Students will learn about insects of different order, different types of antennae, legs and mouth parts of insects. They will study about head and sclerites of insects, insect wings and their venation etc. They will learn about methodology of collection and preservation of insect species.	Remember, Understand
ZOO-HE-6056	Dissertation	CO 1: Students will be able to do small scale research work by themselves. CO 2: The course will give a comprehensive introduction to data collection, data analysis and presentation in the form of a report or research paper. CO 3: The course will give an overview on field survey and scientific data collection. CO 4: Students will have the idea of performing time bound scientific research work and writing reports or dissertations.	Remember, Understand, Apply

	ZOO-SE-6014	Wildlife Photography and Ecotourism	CO 1: Students will be able to handle various tools and techniques of photography and videography. CO 2: The students will get a practical knowledge of photography through field visits to different places like Wetlands, Wildlife sanctuaries, National parks, Industrial sites. CO 3: It will give an overview on scope and Management of Eco-tourism & hospitality among students. CO 4: Students will have the practical knowledge of ecotourism through field visits to Wildlife sanctuaries, Eco-park, Historical and religious places, Cultural museum etc.	Remember, Understand, Apply
	ZOO-RE-6024	Insect, Vectors and Diseases	CO 1: Students will be able to get general idea of Insects and their morphological features. CO 2: The students will get a general idea of insect vectors, their classification and the major diseases caused by them. CO 3: The students will	Remember, Understand

			learn about dipterans, *Siphonoptera* insect's vectors and the diseases caused by them. CO 4: The students will learn about *Siphunculata*, Hemipteran insect vectors and the diseases caused by them.	

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Course Outcome NEP

Semester	Course Code	Course Name	Course Outcome	Bloom Taxonomy Level
I	ZOO-1011	Diversity of Non-Chordates	CO 1: Students will be able to learn about the importance of systematics, taxonomy. CO2: Students will learn structural organization of animals as well as understand the evolutionary history and relationships of different non-chordates through functional and structural affinities.	Remember, Understand
		Environmental Studies	CO 1: Students will be able to a deep understanding of the various components of environmental systems, including ecosystems, biogeochemical cycles, and the interactions between organisms and their environments. CO 2: Students to be expected to develop field skills such as data collection, specimen identification, and environmental monitoring.	Remember, Understand, Apply
	SEC-010-7003	Ornamental Fish & Fisheries	CO 1: Students will develop a deep understanding of different species of ornamental fish, be able to design and set up aquariums. CO 2: Students will learn about common diseases and health issues that affect ornamental fish and develop the skills to diagnose and treat these problems and gain knowledge about the breeding and reproduction of ornamental fish species.	Remember, Understand, Apply
	MDC-I	Basics in Life Sciences	CO 1: Students will gain a deep understanding of fundamental anthropology.	Remember, Understand

			CO 2: Students will grasp the basic principles of the theory of evolution, including natural selection, genetic variation, and adaptation, able to describe various lines of evidence that support the theory of evolution, such as fossil records, comparative anatomy, molecular biology, and biogeography. CO 3: Students will learn about the economic importance of animals, including their roles in agriculture, pest control, medicine, and food production.	